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L Number	Hits	Search Text	DB	Time stamp
-	1	ep-1122607-$.did.	EPO; DERWENT	2002/05/22 11:06
-	0	soxhlet and 430/327.ccls.	USPAT; US-PGPUB	2002/05/22 11:07
-	267	soxhlet and 430/$6.ccls.	USPAT; US-PGPUB	2002/05/22 11:29
-	34	soxhlet and 430/269-331.ccls.	USPAT; US-PGPUB	2002/05/22 11:08
-	10	soxhlet and 430/270.1.ccls.	USPAT; US-PGPUB	2002/05/22 11:28
-	24	(soxhlet and 430/269-331.ccls.) not (soxhlet and 430/270.1.ccls.)	USPAT; US-PGPUB	2002/05/22 11:12
-	233	(soxhlet and 430/$6.ccls.) not (soxhlet and 430/269-331.ccls.)	USPAT; US-PGPUB	2002/05/22 11:22
-	504	extract$10 and 430/270.1.ccls.	USPAT; US-PGPUB	2002/05/22 11:29
-	52	soxhlet and 430/$6.ccls.	USOCR	2002/05/22 11:32
-	494	(extract$10 and 430/270.1.ccls.) not (soxhlet and 430/270.1.ccls.)	USPAT; US-PGPUB	2002/05/22 12:32
-	435	((extract$10 and 430/270.1.ccls.) not (soxhlet and 430/270.1.ccls.)) and (methylene chloride)	USPAT; US-PGPUB	2002/05/22 12:33
-	193	((extract$10 and 430/270.1.ccls.) not (soxhlet and 430/270.1.ccls.)) and (methylene adj chloride)	USPAT; US-PGPUB	2002/05/22 12:33
-	1	2000jp-0173708.ap,prai.	EPO; JPO; DERWENT	2002/05/22 12:45
-	1	us-6140015-$.did.	EPO; JPO; DERWENT	2002/05/22 13:25
-	1	("5889077").PN.	USPAT; US-PGPUB	2002/05/22 13:25
-	1690	430/270.1,327.ccls. and (filter$10 or filtrat$10)	USPAT; US-PGPUB	2002/05/22 14:34
-	624	430/270.1,327.ccls. and ((filter$10 or filtrat$10) same (polymer$3))	USPAT; US-PGPUB	2002/05/23 13:28
-	1	("4491628").PN.	USPAT; US-PGPUB	2002/05/23 10:14
-	1	("5514520").PN.	USPAT; US-PGPUB	2002/05/23 10:19
-	1	("5128232").PN.	USPAT; US-PGPUB	2002/05/23 10:19
-	7	("4148654" | "4439516" | "4506006" | "4576901" | "4678737" | "4720445" | "4857435").PN.	USPAT	2002/05/23 10:21
-	631	430/270.1,327.ccls. and ((filter$10 or filtrat$10) same (polymer$3))	USPAT; US-PGPUB	2002/05/23 13:43
-	23	(430/270.1,327.ccls. and ((filter$10 or filtrat$10) same (polymer$3))) and anisole	USPAT; US-PGPUB	2002/05/23 13:31
-	1	430/270.1,327.ccls. and ((filter$10 or filtrat$10) same (polymer$3) same anisole)	USPAT; US-PGPUB	2002/05/23 13:36
-	22	430/270.1,327.ccls. and ((polymer$3) same anisole)	USPAT; US-PGPUB	2002/05/23 15:32
-	0	2000jp-007888.ap.	EPO; JPO; DERWENT	2002/05/23 15:11
-	35578	takeda.in.	EPO; JPO; DERWENT	2002/05/23 15:11
-	13	takeda.in. and watanabe.in. and hatakeyama.in.	EPO; JPO; DERWENT	2002/05/23 15:12
-	1	430/270.1,327.ccls. and ((polymer$3) same (methoxybenzene methyl adj phenyl adj ether phenoxymethane phenyl adj methyl adj ether))	USPAT; US-PGPUB	2002/05/23 15:35
-	39	430/270.1,327.ccls. and ((methoxybenzene methyl adj phenyl adj ether phenoxymethane phenyl adj methyl adj ether))	USPAT; US-PGPUB	2002/05/23 15:35
-	149	(430/269-331.ccls.) and fractionat$10	USPAT; US-PGPUB	2002/05/23 16:31
-	1	("6177226").PN.	USPAT; US-PGPUB	2002/05/23 16:18
-	8	fractionat$10 and soxhlet and novolak	USPAT; US-PGPUB	2002/05/23 16:32

-	9	fractionat$10 and soxhlet and amplified	USPAT; US-PGPUB	2002/05/23 16:32
-	9	fractionat$10 and soxhlet	EPO; JPO; DERWENT	2002/05/23 16:33
-	528	fractionat$10 and soxhlet	USPAT; US-PGPUB	2002/05/23 16:43
-	2044	POLYHYDROXYSTYRENE$10 OR POLY adj HYDROXYSTYRENE$10 OR POLY adj HYDROXY adj STYRENE$10 OR POLYHYDROXY adj STYRENE$10 OR POLYVINYLPHENOL$10 OR POLYVINYL adj PHENOL$10 OR POLY adj VINYL adj PHENOL$10 OR POLY adj VINYLPHENOL$10	USPAT; US-PGPUB	2002/05/23 17:10
-	116	(POLYHYDROXYSTYRENE$10 OR POLY adj HYDROXYSTYRENE$10 OR POLY adj HYDROXY adj STYRENE$10 OR POLYHYDROXY adj STYRENE$10 OR POLYVINYLPHENOL$10 OR POLYVINYL adj PHENOL$10 OR POLY adj VINYL adj PHENOL$10 OR POLY adj VINYLPHENOL$10) and fractionat$10	USPAT; US-PGPUB	2002/05/23 17:10
-	99	(POLYHYDROXYSTYRENE$10 OR POLY adj HYDROXYSTYRENE$10 OR POLY adj HYDROXY adj STYRENE$10 OR POLYHYDROXY adj STYRENE$10 OR POLYVINYLPHENOL$10 OR POLYVINYL adj PHENOL$10 OR POLY adj VINYL adj PHENOL$10 OR POLY adj VINYLPHENOL$10) and fractionat$10 and 430/$6.ccls.	USPAT; US-PGPUB	2002/05/23 17:10

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NEWS 5	Feb 19	Access via Tymnet and SprintNet Eliminated Effective 3/31/02
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NEWS 7	Mar 22	TOXLIT no longer available
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NEWS 9	Mar 28	US Provisional Priorities searched with P in CA/CAplus and USPATFULL
NEWS 10	Mar 28	LIPINSKI/CALC added for property searching in REGISTRY
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FULL ESTIMATED COST	0.21	0.21

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FILE COVERS 1907 - 16 May 2002 VOL 136 ISS 21
FILE LAST UPDATED: 16 May 2002 (20020516/ED)

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=> s chem? (5a) ampli? and fractionat?
       2074718 CHEM?
        257063 AMPLI?
          4193 CHEM? (5A) AMPLI?
        137441 FRACTIONAT?
L1          13 CHEM? (5A) AMPLI? AND FRACTIONAT?

=> d ti

L1   ANSWER 1 OF 13  CA  COPYRIGHT 2002 ACS
TI   The anti-proliferative effect of calcitriol on HL-60 cells is neutralized
     by uremic biological fluids


=> d ti 2-23

L1   ANSWER 2 OF 13  CA  COPYRIGHT 2002 ACS
TI   Endocrine-regulated and protein kinase C-dependent generation of
     superoxide by rat preovulatory follicles

L1   ANSWER 3 OF 13  CA  COPYRIGHT 2002 ACS
TI   Prostaglandin F2.alpha. treatment in vivo, but not in vitro, stimulates
     protein kinase C-activated superoxide production by nonsteroidogenic cells
     of the rat corpus luteum

L1   ANSWER 4 OF 13  CA  COPYRIGHT 2002 ACS
TI   Manufacture of ultraviolet-sensitive chemically-
     amplified resist and inspection thereof

L1   ANSWER 5 OF 13  CA  COPYRIGHT 2002 ACS
TI   Oxidative stress induced by humic acid solvent extraction fraction in
     cultured rabbit articular chondrocytes

L1   ANSWER 6 OF 13  CA  COPYRIGHT 2002 ACS
TI   Nanometer-scale imaging characteristics of novolak resin-based
     chemical amplification negative resist systems and
     molecular weight distribution effects of the resin matrix
```

L1 ANSWER 7 OF 13 CA COPYRIGHT 2002 ACS
TI Geochemical and isotopic evidence for crystal melt + fluid phase equilibria and late stage fluid rock interaction in granitic rocks of the Ririwai Complex, northern Nigeria

L1 ANSWER 8 OF 13 CA COPYRIGHT 2002 ACS
TI Structure-property relationships in tert-butoxycarbonyl (t-BOC) protected novolaks for resist applications

L1 ANSWER 9 OF 13 CA COPYRIGHT 2002 ACS
TI Tert-Butoxycarbonylated novolaks as **chemically amplified** dual-tone resists

L1 ANSWER 10 OF 13 CA COPYRIGHT 2002 ACS
TI tert-Butoxycarbonylated novolak resins as **chemically amplified** imaging materials

L1 ANSWER 11 OF 13 CA COPYRIGHT 2002 ACS
TI Measurement of chemiluminescence in freshly drawn human blood. I. Role of granulocytes, platelets, and plasma factors in zymosan-induced chemiluminescence

L1 ANSWER 12 OF 13 CA COPYRIGHT 2002 ACS
TI The interrelation between variations in magnetic anomaly **amplitudes** and basalt magnetization and **chemistry** along the Southeast Indian Ridge

L1 ANSWER 13 OF 13 CA COPYRIGHT 2002 ACS
TI The effect of physical changes on isotope **fractionation**

=> d all 6,8-10

L1 ANSWER 6 OF 13 CA COPYRIGHT 2002 ACS
AN 122:200999 CA
TI Nanometer-scale imaging characteristics of novolak resin-based **chemical amplification** negative resist systems and molecular weight distribution effects of the resin matrix
AU Shiraishi, Hiroshi; Yoshimura, Toshiyuki; Sakamizu, Toshio; Ueno, Takumi; Okazaki, Shinji
CS Cent. Res. Lab., Hitachi, Ltd., Tokyo, 185, Japan
SO J. Vac. Sci. Technol., B (1994), 12(6), 3895-9
CODEN: JVTBD9; ISSN: 0734-211X
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB Mol. wt. distribution effects of novolak resin-based **chem. amplification** neg. resist systems are investigated for electron-beam lithog. The resist systems investigated consist of onium salts as an acid generator, a methoxymethyl melamine crosslinker, and a conventional/**fractionated** novolak resin matrix. Delineated patterns of both types of resist systems are compared to evaluate submicron-scale resoln. The conventional novolak resin-based system shows higher contrast than the **fractionated** one. High aspect ratio patterns are resolved for the conventional novolak-based resist, whereas poor results are obtained for the **fractionated** resin-based one on the electron beam (diam.: approx. 2 nm at 5 kV) from a scanning electron microscope. Nanometer-scale edge roughness (nanoedge roughness) is obsd. for the conventional novolak resin-based resist. On the contrary, the degree of nanoedge roughness is greatly reduced for the **fractionated** one.
ST novolak **chem amplification** neg electron resist; microlithog electron resist **chem amplification** novolak

IT Resists
(electron-beam, neg.-working, **chem. amplification**; nanometer-scale imaging characteristics of novolak resin-based resists and mol. wt. distribution effects of the resin matrix)
IT Phenolic resins, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(novolak, nanometer-scale imaging characteristics of **chem. amplification** neg. resist systems and mol. wt. distribution effects of resin matrix)
IT 9003-08-1, Cymel 300
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(crosslinker; nanometer-scale imaging characteristics of **chem. amplification** neg. resist systems and mol. wt. distribution effects of novolak matrix)
IT 27029-76-1, m-Cresol-p-cresol-formaldehyde copolymer
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(nanometer-scale imaging characteristics of **chem. amplification** neg. resist systems and mol. wt. distribution effects of resin matrix)

L1 ANSWER 8 OF 13 CA COPYRIGHT 2002 ACS
AN 119:237803 CA
TI Structure-property relationships in tert-butoxycarbonyl (t-BOC) protected novolaks for resist applications
AU Gozdz, Antoni S.; Shelburne, John A.; Lin, Paul S. D.
CS Bellcore, Red Bank, NJ, 07701, USA
SO Polym. Mater. Sci. Eng. (1992), 66, 192-3
CODEN: PMSEDG; ISSN: 0743-0515
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB Various properties of t-BOC protected novolaks strongly depend on the oligomeric fraction content, mol. wt. and the degree of functionalization. Crudely **fractionated** t-BOC novolaks are useful materials for the formation of sensitive, high-resoln. **chem. amplified** resists. Peculiar soly. of the deblocked novolac suggests, however, that t-BOC-novolaks should preferably be used as neg.-tone imaging materials.
ST butoxycarbonyl protected novolak photoresist lithog
IT Molecular structure-property relationship
(in butoxycarbonyl-protected novolak resists)
IT Phenolic resins, properties
RL: PRP (Properties)
(novolak, butoxycarbonyl-group contg., structure-property relationships in photoresists based on)
IT Resists
(photo-, butoxycarbonyl-protected novolaks for, structure-property relationships in)
IT 87261-04-9, Poly[p-(tert-butoxycarbonyl)oxy)styrene]
RL: USES (Uses)
(photoresist, structure-property relationships in)

L1 ANSWER 9 OF 13 CA COPYRIGHT 2002 ACS
AN 118:69880 CA
TI Tert-Butoxycarbonylated novolaks as **chemically amplified** dual-tone resists
AU Gozdz, Antoni S.; Shelburne, John A.
CS Bellcore, Red Bank, NJ, 07701, USA
SO Polymer (1992), 33(21), 4653-5
CODEN: POLMAG; ISSN: 0032-3861
DT Journal

LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB **Fractionated** tert-butoxycarbonylated cresol-formaldehyde novolak (tBOC-N) was studied as a dual-tone, **chem. amplified**, deep-UV and electron-beam resist. The protected polymer is highly transparent at .lambda. > 240 nm, and thermally stable up to 170.degree.. Neg.-tone, 75-nm line-and-space patterns were produced in the tBOC-N-based resist by electron-beam lithog. The deprotected novolak was insol. in aq. bases, possibly because of acid-catalyzed alkylation reaction.
ST butoxycarbonylated cresol formaldehyde novolak lithog resist; photoresist electron resist butoxycarbonylated novolak lithog; butoxycarbonyloxy protected novolak **chem amplified** resist
IT Resists
(electron-beam, **chem. amplified** dual-tone, butoxycarbonylated novolaks as)
IT Phenolic resins, properties
RL: PRP (Properties)
(novolak, butoxycarbonylated, lithog. properties of, as **chem. amplified** dual-tone resist for electron-beam and deep-UV exposures)
IT Resists
(photo-, butoxycarbonylated novolaks as **chem. amplified** dual-tone)
IT 57840-38-7, Triphenylsulfonium hexafluoroantimonate 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate 104558-94-3, Cyracure UV-6974 114719-51-6
RL: USES (Uses)
(lithog. **chem. amplified** dual-tone resist contg. butoxycarbonylated novolak and, for deep-UV and electron-beam exposures)
IT 145685-50-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and lithog. characterization of, as **chem. amplified** dual-tone resist for deep-UV and electron-beam exposures)

L1 ANSWER 10 OF 13 CA COPYRIGHT 2002 ACS
AN 117:160649 CA
TI tert-Butoxycarbonylated novolak resins as **chemically amplified** imaging materials
AU Gozdz, Antoni S.; Shelburne, John A., III
CS Bellcore, Red Bank, NJ, 07701, USA
SO Proc. SPIE-Int. Soc. Opt. Eng. (1992), 1672(Adv. Resist Technol. Process. IX), 184-93
CODEN: PSISDG; ISSN: 0277-786X
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB A sensitive, 2-tone, **chem. amplified**, deep-UV and electron-beam resist system was studied. The resist is composed of tert-butoxycarbonylated novolak (tBOC-N) and a photoacid generator (PAG). Preferably, the matrix polymer is synthesized from novolak, from which the low mol. wt. fraction has been removed by **fractionation** or extn. The polymer is highly transparent at .lambda. >240 nm (OD .simeq. 0.15/.mu.m) and is thermally stable up to .apprx.180.degree.. While the deblocked polymer remains insol. in aq. bases, it can be developed in lower alcs. The dual-tone resist exhibits sensitivity of <5 mJ/cm2 at 254 nm and <3 .mu.C/cm2 at 50 kV. Very high resoln., neg.-tone structures were defined in this resist by electron-beam lithog.
ST novolak butoxycarbonyloxy deriv **chem amplified** resist; lithog photoresist novolak butoxycarbonyloxy deriv
IT Resists

(**chem**. **amplified**, contg. tert-butoxycarbonylated novolak and photoacid generator)
IT Infrared spectra
Ultraviolet and visible spectra
(of tert-butoxycarbonylated novolak resins)
IT Lithography
(electron-beam, tert-butoxycarbonylated novolak resins as **chem**. **amplified** resists for deep-UV and)
IT Phenolic resins, uses
RL: USES (Uses)
(novolak, tert-butoxycarbonylated, as **chem**. **amplified** imaging material)
IT 143636-45-7
RL: USES (Uses)
(**chem**. **amplified** deep-UV and electron-beam resist system from, sensitive and dual-tone)
IT 66003-78-9
RL: USES (Uses)
(photoacid generator, **chem**. **amplified** deep-UV and electron-beam resist system contg. tert-butoxycarbonylated novolak resin and)
IT 7782-44-7, Oxygen, properties
RL: PRP (Properties)
(reactive ion etching of tert-butoxycarbonylated novolak resin with)
IT 100-66-3, Anisol, uses 104-51-8, n-Butylbenzene 105-05-5, p-Diethylbenzene 119-64-2, Tetralin 1330-20-7, Xylene, uses
RL: USES (Uses)
(tert-butoxycarbonylated novolak resin dissoln. in, for deep-UV and electron-beam lithog.)

=> file uspatall

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	19.86	20.07
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-2.36	-2.36

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(FILE 'HOME' ENTERED AT 15:16:16 ON 23 MAY 2002)

FILE 'CA' ENTERED AT 15:16:23 ON 23 MAY 2002
L1 13 S CHEM? (5A) AMPLI? AND FRACTIONAT?

FILE 'USPATFULL, USPAT2' ENTERED AT 15:19:28 ON 23 MAY 2002

=> s l1
L2 277 L1

=> s l2 and soxhlet
L3 0 L2 AND SOXHLET

=> s chem? (5a) ampli? and soxlet
L4 0 CHEM? (5A) AMPLI? AND SOXLET

=> s chem? (5a) ampli? and soxhlet
L5 6 CHEM? (5A) AMPLI? AND SOXHLET

=> d ti 1-6

L5 ANSWER 1 OF 6 USPATFULL
TI Polymers and use thereof

L5 ANSWER 2 OF 6 USPATFULL
TI Quinone diazo compound containing non-metallic atom

L5 ANSWER 3 OF 6 USPATFULL
TI Integrated chemical/biological treatment of organic waste

L5 ANSWER 4 OF 6 USPATFULL
TI Process for producing a positive pattern utilizing naphtho quinone diazide compound having non-metallic atom directly bonded to the naphthalene ring

L5 ANSWER 5 OF 6 USPATFULL
TI Positive resist composition containing naphthoquinonediazide compound having non-metallic atom directly bonded to the naphthalene ring

L5 ANSWER 6 OF 6 USPATFULL
TI Sensitivity and selectivity of ion channel biosensor membranes

=> d pn,ab,kwic 1-2,4-5

L5 ANSWER 1 OF 6 USPATFULL
PI US 6346362 B1 20020212
AB Compositions comprising a polymer having silicon, germanium and/or tin; and a protecting group grafted onto a polymeric backbone are useful as resists and are sensitive to imaging irradiation while exhibiting enhanced resistance to reactive ion etching.
SUMM Moreover, **chemically amplified** resists are employed extensively in the electronics industry. The **chemically amplified** resists are typically based on polyhydroxy styrene and other polymeric backbones that undergo deprotection when a photoacid generator, which is. . .
SUMM The performance of these **chemically amplified** resists to withstand reactive ion etching in Cl.sub.2/O.sub.2 plasma requires improvement. Accordingly, a need exists to develop radiation sensitive compositions. . .
DETD The dry solid is placed in a **Soxhlet** apparatus and extracted with hexane for 24 hours to remove any traces of organic small molecules. The resulting solid is. . .

L5 ANSWER 2 OF 6 USPATFULL
PI US 5644038 19970701
AB Quinone diazo compounds having bonded to the diazo ring or directly bonded to a ring of the compound, certain non-metallic atoms that improve the photosensitivity thereof are provided. These quinone diazo compounds are useful as photoactive compounds in photoresist compositions, and particularly positive photoresist composition employed in x-ray or electron beam radiation. Also provided is a method for preparing compounds of the present invention.
SUMM Attempts to provide x-ray sensitive resists have resulted in what is referred to as **chemically amplified** resists material. An example of such is a hydroxylated polystyrene backbone, having attached thereto tert.butyl carbonate. Although these materials are. . . the disadvantage that they are extremely sensitive to contaminants, such as degradation by acid and airborne amines. In fact, these **chemically amplified** resists are prone to

poisoning by even ppm levels of contaminants. Therefore, the use of such requires extremely careful control. . .

SUMM . . . object of the present invention to provide materials for such purposes, which do not suffer from the problems experienced with **chemically amplified** resist materials. Furthermore, it is desirable to provide resist compositions that make it possible to employ derivatives of diazo quinone. . .

DETD . . . precipitate is formed and is filtered while hot, and then washed in hot water. It is recrystallized from methanol by **soxhlet** extraction to provide 4 iodo-2-nitro-1-naphthylamine.

L5 ANSWER 4 OF 6 USPATFULL

PI US 5567569 19961022

AB Quinone diazo compounds having bonded to the diazo ring or directly bonded to a ring of the compound, certain non-metallic atoms that improve the photosensitivity thereof are provided. These quinone diazo compounds are useful as photoactive compounds in photoresist compositions, and particularly positive photoresist composition employed in x-ray or electron beam radiation. Also provided is a method for preparing compounds of the present invention.

SUMM Attempts to provide x-ray sensitive resists have resulted in what is referred to as **chemically amplified** resists material. An example of such is a hydroxylated polystyrene backbone, having attached thereto tert. butyl carbonate. Although these materials. . . the disadvantage that they are extremely sensitive to contaminants, such as degradation by acid and airborne amines. In fact, these **chemically amplified** resists are prone to poisoning by even ppm levels of contaminants. Therefore, the use of such requires extremely careful control. . .

SUMM . . . object of the present invention to provide materials for such purposes, which do not suffer from the problems experienced with **chemically amplified** resist materials. Furthermore, it is desirable to provide resist compositions that make it possible to employ derivatives of diazo quinone. . .

DETD . . . precipitate is formed and is filtered while hot, and then washed in hot water. It is recrystallized from methanol by **soxhlet** extraction to provide 4 iodo-2-nitro-1-naphthylamine.

L5 ANSWER 5 OF 6 USPATFULL

PI US 5552256 19960903

AB Quinone diazo compounds having bonded to the diazo ring or directly bonded to a ring of the compound, certain non-metallic atoms that improve the photosensitivity thereof are provided. These quinone diazo compounds are useful as photoactive compounds in photoresist compositions, and particularly positive photoresist composition employed in x-ray or electron beam radiation. Also provided is a method for preparing compounds of the present invention.

SUMM Attempts to provide x-ray sensitive resists have resulted in what is referred to as **chemically amplified** resists material. An example of such is a hydroxylated polystyrene backbone, having attached thereto tert. butyl carbonate. Although these materials. . . the disadvantage that they are extremely sensitive to contaminants, such as degradation by acid and airborne amines. In fact, these **chemically amplified** resists are prone to poisoning by even ppm levels of contaminants. Therefore, the use of such requires extremely careful control. . .

SUMM . . . object of the present invention to provide materials for such purposes, which do not suffer from the problems experienced with **chemically amplified** resist materials. Furthermore, it is desirable to provide resist compositions that make it possible to employ derivatives of diazo quinone. . .

DETD . . . precipitate is formed and is filtered while hot, and then washed in hot water. It is recrystallized from methanol by **soxhlet** extraction to provide 4-iodo-2-nitro1-naphthylamine.

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=> d his

     (FILE 'HOME' ENTERED AT 15:16:16 ON 23 MAY 2002)

     FILE 'CA' ENTERED AT 15:16:23 ON 23 MAY 2002
L1            13 S CHEM? (5A) AMPLI? AND FRACTIONAT?

     FILE 'USPATFULL, USPAT2' ENTERED AT 15:19:28 ON 23 MAY 2002
L2           277 S L1
L3             0 S L2 AND SOXHLET
L4             0 S CHEM? (5A) AMPLI? AND SOXLET
L5             6 S CHEM? (5A) AMPLI? AND SOXHLET

=> file reg
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    11.48      31.55

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                     0.00      -2.36

FILE 'REGISTRY' ENTERED AT 15:21:43 ON 23 MAY 2002
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STRUCTURE FILE UPDATES:   21 MAY 2002  HIGHEST RN 420086-04-0
DICTIONARY FILE UPDATES:  21 MAY 2002  HIGHEST RN 420086-04-0

TSCA INFORMATION NOW CURRENT THROUGH July 7, 2001

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Calculated physical property data is now available.  See HELP PROPERTIES
for more information.  See STNote 27, Searching Properties in the CAS
Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> s polyvinylphenol/cn
L6             0 POLYVINYLPHENOL/CN

=> s polyvinyl phenol/cn
L7             0 POLYVINYL PHENOL/CN

=> s poly vinyl phenol/cn
L8             0 POLY VINYL PHENOL/CN

=> s hydroxystyrene
L9           378 HYDROXYSTYRENE

=> s hydroxystyrene/cn
L10            1 HYDROXYSTYRENE/CN

=> d

L10  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2002 ACS
RN   31257-96-2  REGISTRY
CN   Phenol, ethenyl- (9CI)  (CA INDEX NAME)
```

OTHER CA INDEX NAMES:
CN Phenol, vinyl- (7CI)
OTHER NAMES:
CN Ethenylphenol
CN **Hydroxystyrene**
CN Vinylphenol
MF C8 H8 O
CI IDS, COM
LC STN Files: BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, CHEMLIST, CIN,
      IFICDB, IFIPAT, IFIUDB, NAPRALERT, PIRA, PROMT, TOXCENTER, USPATFULL
    Other Sources: EINECS**
      (**Enter CHEMLIST File for up-to-date regulatory information)

D1—OH

D1—CH═CH_2

115 REFERENCES IN FILE CA (1967 TO DATE)
57 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
115 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> s 31257-96-2/crn
L11 201 31257-96-2/CRN

=> file ca

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	22.34	53.89
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-2.36

FILE 'CA' ENTERED AT 15:22:47 ON 23 MAY 2002
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FILE COVERS 1907 - 16 May 2002 VOL 136 ISS 21
FILE LAST UPDATED: 16 May 2002 (20020516/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

```
=> s l11 and soxhlet
          1233 L11
          7744 SOXHLET
L12          0 L11 AND SOXHLET

=> s novolak and soxhlet
         20535 NOVOLAK
          7744 SOXHLET
L13          3 NOVOLAK AND SOXHLET

=> d all 1-3
```

L13 ANSWER 1 OF 3 CA COPYRIGHT 2002 ACS
AN 133:44275 CA
TI Aramid fiber-epoxy adhesion improvement by fiber surface modification
AU Ishihara, S.; Drzal, L. T.
CS Teijin Limited, Fibers Technology Department, EHIME, 791-8042, Japan
SO Proceedings of the American Society for Composites, Technical Conference (1999), 14th, 521-528
CODEN: PAMTEG; ISSN: 1084-7243
PB Technomic Publishing Co., Inc.
DT Journal
LA English
CC 37-6 (Plastics Manufacture and Processing)
AB The objective of this research is to develop a fundamental understanding of adhesion of the Technora aramid fiber to an epoxy polymer and how it can be influenced by thermal and chem. pretreatments. In general, aramid fibers are para-type, rod-like polymer having high crystallinity, which leads to high strength and high modulus. The surface is not chem. active and the adhesion between fibers and matrixes is not high compared to inorg. fibers. The use of aramid fibers in tire applications has resulted in specialized epoxy-contg., RFL coatings applied at high temps. to provide the necessary adhesion prior to incorporation into tire rubber. The role of chem. interactions between the aramid fiber surface and the epoxy mol. was detd. in this study by conducting epoxy treatments at high temp. on the aramid fiber, Technora, and the effects of the treatment to the surface as well as the fundamental properties of Technora were investigated. Samples were immersed in liq. epoxy DGEBA, brominated DGEBA or other epoxy functional resin and treated at temps. up to 240.degree.C. Excess non chemisorbed material was removed from the surface by **soxhlet** extn. Surface anal. of the fibers after exposure to multifunctional and monofunctional epoxy as well as brominated epoxy was completed using XPS (XPS). Adhesion measurements were made and an interfacial shear strength (ISS) was detd. with the single fiber fragmentation test (SFFT) using a DGEBA epoxy cured with m-phenylenediamine.
ST aramid fiber adhesion epoxy resin
IT Adhesion, physical
(aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)
IT Epoxy resins, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT Polyamide fibers, properties
Polyamide fibers, properties
Synthetic polymeric fibers, properties
Synthetic polymeric fibers, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(diaminodiphenyl ether-phenylenediamine-terephthalic acid; aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT Phenolic resins, uses
RL: MOA (Modifier or additive use); USES (Uses)
(epoxy, **novolak**; aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT Epoxy resins, uses
RL: MOA (Modifier or additive use); USES (Uses)
(phenolic, **novolak**; aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT Polyethers, properties
Polyethers, properties
Polyethers, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyamide-, fiber, diaminodiphenyl ether-phenylenediamine-terephthalic acid; aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT Polyamides, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyether-, fiber, diaminodiphenyl ether-phenylenediamine-terephthalic acid; aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT 4436-24-2, 1,2-Epoxy-3-phenylpropane 25068-38-6, Epon 828 33294-14-3, DER 542 37348-52-0, DEN 431
RL: MOA (Modifier or additive use); USES (Uses)
(aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT 51555-22-7, Epon 828-m-phenylenediamine copolymer
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

IT 66559-37-3, 3,4'-Diaminodiphenyl ether-1,4-phenylenediamine-terephthalic acid copolymer
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(fiber; aramid fiber-epoxy adhesion improvement by surface modification of the fibers with epoxy resins at elevated temp.)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Chou, C; J Adhesion 1991, V36, P125 CA
(2) Drzal, L; Composite Interfaces 1997, V4, P337 CA
(3) Kalantar, J; J Matr Sci 1990, V24
(4) Kalantar, J; J Matr Sci 1990, V25, P4194 CA
(5) Morgan, R; Polymer 1987, V28, P340 CA
(6) Takayanagi, M; J Applied Polymer Science 1982, V27, P3903 CA
(7) Wu, Y; J Applied Polymer Science 1986, V31, P1041 CA

L13 ANSWER 2 OF 3 CA COPYRIGHT 2002 ACS
AN 68:78979 CA
TI Method for evaluating the curing rate of phenol-formaldehyde resins by gas evolution kinetics
AU Pshenitsyna, V. P.; Peshekhonova, A. L.; Grishina, G. L.; Shabadash, A. N.
SO Plast. Massy (1968), (2), 34-5
CODEN: PLMSAI

DT Journal
LA Russian
CC 36 (Plastics Manufacture and Processing)
AB In curing **novolak** resins (I) with hexamethylenetetramine (II), there is evolution of gases. Ir spectroscopy showed that the gases contain .apprx.95% NH3 and aliphatic amines. Measuring pressure changes (.DELTA.P) during heating at 150.degree. of a closed system consisting of 9:1 I-II mixt. gave a method for obtaining curing rate of I. The method was checked by detg. decrease of II content in I by ir spectroscopy of resin samples during curing. A third method for obtaining the curing rates consisted of extn. of samples of the resin during curing in a **Soxhlet** app. with EtOH. Decrease in % sol. resin indicated degree of crosslinking (CD). Curves for .DELTA.P, relative optical d., and CD vs. time were obtained. Gas evolution and ir methods were equiv. CD vs. time curve had an inflection 30-40 sec. later than the other two, showing that decompn. of I precedes crosslinking. Inflections in the gas evolution and ir spectrum curves correspond to the 1st stage of gelation.
ST **NOVOLAK** RESINS CURING RATE; RESINS **NOVOLAK** CURING RATE; CURING RATE **NOVOLAK** RESINS; PHENOL FORMALDEHYDE CURING RATE; HEXAMETHYLENETETRAMINE RESIN
IT Spectra, infrared
(of phenol condensation products crosslinked by hexamethylenetetramine)
IT Kinetics of crosslinking
(of phenol condensation products, by hexamethylenetetramine, detn. of)
IT Phenol condensation products, reactions
RL: RCT (Reactant)
(**novolak**, crosslinking of, by hexamethylenetetramine, kinetics of)
IT 100-97-0, reactions
RL: RCT (Reactant)
(crosslinking by, of phenol condensation products, kinetics of)

L13 ANSWER 3 OF 3 CA COPYRIGHT 2002 ACS
AN 54:44373 CA
OREF 54:8690f-i,8691a-g
TI The structure of synthetic resins. X. Qualitative proof of the phenol-formaldehyde resins
AU Zigeuner, G.; Jellinek, K.; Normann, D.; Elbel, K.
CS Univ. Graz, Austria
SO Monatsh. (1959), 90, 473-80
DT Journal
LA Unavailable
CC 10E (Organic Chemistry: Benzene Derivatives)
AB cf. C.A. 54, 4442f. Oxidative alkali melts of PbO2 with 4-hydroxymethyl-2,6-dimethylphenol (I) and 6-hydroxymethyl-2,4-dimethylphenol (II) result mainly in hydroxytrimesic acid (III), as well as 2-hydroxyisophthalic acid (IV) and 4-hydroxyisophthalic acid (V). Degradation of 2,4-bis(hydroxymethyl)-6-methylphenol (VI) and 2,6-bis(hydroxymethyl)-4-methylphenol (VII) and their hardening products show analogous results. 2,4,6-Tris(hydroxymethyl)phenol (VIII) yields much III, some V, and traces of 4-hydroxybenzoic acid (IX); its hardening product also yields much III, but also much V, and smaller amts. of IV, salicylic acid (X), and IX. Oxidative degradation of 4,4'-dihydroxy-3,3',5,5'-tetrakis(hydroxymethyl)biphenyl (XI) leads to much III, IV, and V, and small amts. of IX and X. 2,6-Bis(hydroxymethyl)phenol (XII) and 2,4-bis(hydroxymethyl)phenol (XIII) and 2-(hydroxymethyl)phenol (XIV) and 4-(hydroxymethyl)phenol (XV) give analogous results. Front XII are obtained IV and some X; its hardening product yields X, IX, V, and much IV. XIII yields much V and little IX; XIV and XV form IX and X and V. Furthermore, the amts. of side-products, obtained from oxidative alkali melts of I, II, VI, VII, VIII, XI, XII, XIII, XIV, and XV, increase with increase in melt temp., e.g. XV and its hardening product yield IX and V at 220.degree., and also III at 320.degree.. Despite the side-reactions, the oxidative alkali melts are useful for qual. detns. of phenoplasts.

Thus, the methylene poly-rings formed from p-cresol and HCHO yield III, V, and IX. Thus, 2,2'-dihydroxydiphenylmethane (XVI) and 4,4'-dihydroxydiphenylmethane (XVII) yield X and IX, resp. 2,4'-Dihydroxydiphenylmethane (XVIII), however, is cleaved in 2 ways, forming both IX and X. In the same way, 2,6-bis(2-hydroxybenzyl)phenol (XIX) and 2,4-bis(2-hydroxybenzyl)phenol (XX) yield IV and X, and V and X, resp., but the hydroxybenzyl groups of 2,6-bis(4-hydroxybenzyl)phenol (XXI) and 2,4-bis(4-hydroxybenzyl)phenol (XXII) are split off quant., taking along the bridge C of the middle ring, the product being only IX. The oxidative degradation of 2,4,6-tris(2-hydroxybenzyl)phenol (XXIII) is more complicated and yields III, IV, V, IX, and X. A phenol **novolak** prepd. under com. conditions yields at 220.degree. V, IX, and X, but at 320.degree. also III, but no X. This method is also useful to show the degree of interlacing of the hardening products of XVI-XXIII with (CH2)6N4, which yields mainly III, IV, and V, besides IX and X. 2-Hydroxy-3,5-dibromobenzyl bromide, m. 119.degree., (2 g.) prepd. via the method of Auwers and Schroter [Ann. Chem. 344, 142(1905)] and purified in 7:3 ligroine-CHCl3 and recrystd. from ligroine (70% yield), is dissolved in 12 ml. Me2CO, the boiling soln. treated dropwise with 12 ml. H2O, the Me2CO distd. at water bath temp., and 2-hydroxy-3,5-dibromobenzylalc. (XXIV) sepd. as oil, which crystd. after standing several hrs. and recrystd. from 1:1 C6H6-ligroine with C to give 50% needles, m. 89.degree.. XXIV (1 g.) is warmed 2 hrs. at 50.degree. with 4 g. p-ClC6H4OH and 2 ml. POCl3 to crystallize 2,2'-dihydroxy-3,5-dibromo-5'-chlorodiphenylmethane (XXV), which is steam distd. and recrystd. from PhCl as needles, m. 194.degree., in 80% yield. XXV (1 g.) is dehalogenated to XVI by dissolving in 40 ml. 10% aq. NaOH, adding 10 times the calcd. amt. of Raney Ni-Al slurry, stirring thoroughly several hrs., letting stand 12 hrs., filtering off the Ni, and adding with stirring concd. HCl till the Al(OH)3, which 1st ppts., dissolves. XVI, m. 119.degree., is obtained by **Soxhlet** extn. with C6H6 and recrystn. from C6H6. XVI is also obtained in the same series of steps from 2-hydroxy-3,5-dichlorobenzyl chloride. 4-Hydroxy-3,5-dibromobenzyl bromide, m. 150.degree., yield 75%, obtained by the bromination of p-cresol, is transformed into the alc. in 95% yield by the method of Auwers and Daecke [Ber. 32, 3373(1900)], and the alc. treated with p-ClC6H4OH and POCl3 as above to yield 80% 2,4'-dihydroxy-3-chloro-3',5'-dibromodiphenylmethane, m. 127.degree., 80%, dehalogenated to 80% XVII, m. 118.degree.. 4,4'Dihydroxy-3,5-dibromo-3',5'-dichlorodiphenylmethane, m. 223.degree., 70% yield, obtained by treating 4-hydroxy-3,5-dibromobenzyl alc. with 2,6-Cl2C6H3OH and POCl3, is dehalogenated as above to 80% XVIII, m. 158.degree.. Similarly are obtained XIX, m. 160.degree., in 95% yield via 2,6-bis(2-hydroxy-5-chlorobenzyl)-4-chlorophenol, m. 230.degree., 80% yield, and XXI, m. 125.degree., in 60% yield via 2,4-bis(2-hydroxy-5-chlorobenzyl)-6-chlorophenol, m. 176.degree., 65% yield. XX and XXII are prepd. by the method of Finn, et al. (C.A. 49, 5025c). 2,4,6-Tris(2-hydroxy-5-chlorobenzyl)phenol, m. 197.degree., obtained by treating 2,4,6-tris(hydroxymethyl)phenol with p-ClC6H4OH and POCl3, is dehalogenated to 80% XXIII, m. 158.degree.. The oxidative degradation is described by Z. and J. (C.A. 54, 4442f).

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=>  d jos
'JOS' IS NOT A VALID FORMAT FOR FILE 'CA'

The following are valid formats:

ABS --------- GI and AB
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BIB --------- AN, plus Bibliographic Data and PI table (default)
CAN --------- List of CA abstract numbers without answer numbers
CBIB -------- AN, plus Compressed Bibliographic Data
DALL -------- ALL, delimited (end of each field identified)
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DMAX -------- MAX, delimited for post-processing
FAM --------- AN, PI and PRAI in table, plus Patent Family data
FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
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IABS -------- ABS, indented with text labels
IALL -------- ALL, indented with text labels
IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
SIBIB ------- IBIB, no citations

HIT --------- Fields containing hit terms
HITIND ------ IC, ICA, ICI, NCL, CC and index field (ST and IT)
              containing hit terms
HITRN ------- HIT RN and its text modification
HITSTR ------ HIT RN, its text modification, its CA index name, and
              its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
              its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

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     (FILE 'HOME' ENTERED AT 15:16:16 ON 23 MAY 2002)

     FILE 'CA' ENTERED AT 15:16:23 ON 23 MAY 2002
L1            13 S CHEM? (5A) AMPLI? AND FRACTIONAT?

     FILE 'USPATFULL, USPAT2' ENTERED AT 15:19:28 ON 23 MAY 2002
L2           277 S L1
L3             0 S L2 AND SOXHLET
L4             0 S CHEM? (5A) AMPLI? AND SOXLET
L5             6 S CHEM? (5A) AMPLI? AND SOXHLET
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     FILE 'REGISTRY' ENTERED AT 15:21:43 ON 23 MAY 2002
L6             0 S POLYVINYLPHENOL/CN
L7             0 S POLYVINYL PHENOL/CN
L8             0 S POLY VINYL PHENOL/CN
L9           378 S HYDROXYSTYRENE
L10            1 S HYDROXYSTYRENE/CN
L11          201 S 31257-96-2/CRN

     FILE 'CA' ENTERED AT 15:22:47 ON 23 MAY 2002
L12            0 S L11 AND SOXHLET
L13            3 S NOVOLAK AND SOXHLET

=> s chem? (5a) ampli? and soxhlet
       2074718 CHEM?
        257063 AMPLI?
          4193 CHEM? (5A) AMPLI?
          7744 SOXHLET
L14          0 CHEM? (5A) AMPLI? AND SOXHLET

=> s photo? and soxhlet
       1089895 PHOTO?
          7744 SOXHLET
L15         150 PHOTO? AND SOXHLET

=> s photodegrad? and soxhlet
          3737 PHOTODEGRAD?
          7744 SOXHLET
L16          4 PHOTODEGRAD? AND SOXHLET

=> d all 1-4

L16  ANSWER 1 OF 4  CA  COPYRIGHT 2002 ACS
AN   133:197846  CA
TI   Photodegradation of PCBs in surfactant-washed soils
AU   Sampsel, Eric R.; Ghosh, Mriganka M.; Shi, Zhou; Robinson, Kevin G.;
     Sanseverino, John
CS   Department of Civil & Environmental Engineering, University of Tennessee,
     Knoxville, TN, 37996-2010, USA
SO   Hazardous and Industrial Wastes (1999), 31st, 129-136
     CODEN: HIWAEB; ISSN: 1044-0631
PB   Technomic Publishing Co., Inc.
DT   Journal
LA   English
CC   60-4 (Waste Treatment and Disposal)
     Section cross-reference(s): 19, 46
AB   Lab.-scale studies were conducted to det. bioavailability-based endpoints
     for an innovative treatment process involving soil flushing with
     surfactants and above-ground treatment of surfactant wash-water by
     photolysis, followed by aerobic bioremediation.  Surfactant washing of
     polychlorinated biphenyl (PCB)-polluted soil and UV-irradn. of soil
     wash-water are discussed.  A total of 85% of Soxhlet
     extractable-PCB were removed in 3 successive wash cycles using a
     surfactant mass loading ratio of 0.1 g polyoxyethylene:10 lauryl ether/g
     soil.  Photolysis of the resulting wash-water successfully dechlorinated
     40% of PCB in soln., paving the way for facile bioremediation in
     subsequent steps.  The cost of soil washing and photolysis using this
     process was estd. to be $0.454/kg or .apprx.$450/metric ton soil.
ST   waste solids contaminated soil polychlorinated biphenyl; surfactant
     enhanced soil flushing polychlorinated biphenyl; photodegrdn
     polychlorinated biphenyl surfactant wash water; aerobic biodegrdn
     polychlorinated biphenyl surfactant wash water
IT   Wastewater treatment
        (biol.; surfactant-enhanced soil flushing desorption of polychlorinated
```

biphenyls from polluted soil with subsequent photodegrdn. and aerobic n of biphenyls in soil wash water)

IT Soils
(contaminated; surfactant-enhanced soil flushing desorption of polychlorinated biphenyls from polluted soil with subsequent photodegrdn. and aerobic biodegrdn of biphenyls in soil wash water)

IT Surfactants
(nonionic; surfactant-enhanced soil flushing desorption of polychlorinated biphenyls from polluted soil with subsequent photodegrdn. and aerobic n of biphenyls in soil wash water)

IT Wastewater treatment
(photolytic; surfactant-enhanced soil flushing desorption of polychlorinated biphenyls from polluted soil with subsequent photodegrdn. and aerobic n of biphenyls in soil wash water)

IT Desorption
Economics
Soil pollution
Soil reclamation
(surfactant-enhanced soil flushing desorption of polychlorinated biphenyls from polluted soil with subsequent photodegrdn. and aerobic n of biphenyls in soil wash water)

IT 92-52-4D, Biphenyl, chloro derivs. 11096-82-5, Aroclor 1260 11097-69-1, Aroclor 1254 11104-28-2, Aroclor 1221 12672-29-6, Aroclor 1248 12674-11-2, Aroclor 1016 53469-21-9, Aroclor 1242
RL: BPR (Biological process); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); POL (Pollutant); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(surfactant-enhanced soil flushing desorption of polychlorinated biphenyls from polluted soil with subsequent photodegrdn. and aerobic n of biphenyls in soil wash water)

IT 9002-92-0
RL: MOA (Modifier or additive use); USES (Uses)
(surfactant-enhanced soil flushing desorption of polychlorinated biphenyls from polluted soil with subsequent photodegrdn. and aerobic n of biphenyls in soil wash water)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Epling, G; Environ Sci Technol 1988, V22, P952 CA
(2) Shi, Z; Dissertation University of Tennessee 1998
(3) Zepp, R; Environ Sci Technol 1978, V12, P327 CA

L16 ANSWER 2 OF 4 CA COPYRIGHT 2002 ACS

AN 121:211660 CA

TI **Photodegradation** of polychlorinated dibenzofuran internal standards during **Soxhlet**-extraction with toluene

AU Walraven, S.A.C.M.; Langelaan, F.C.G.M.; de Weerd, H.; Fransen, N.C.M.I.; Boers, J.P.; Hafkenscheid, Th.L.

CS Institute of Environmental Sciences, Dep., TNO, Delft, Neth.

SO Organohalogen Compd. (1993), 11(Dioxin '93, 13th International Symposium on Chlorinated Dioxins and Related Compounds, 1993), 57-60
CODEN: ORCOEP

DT Journal

LA English

CC 59-1 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 80

AB We report the of photodegrdn. of 13C12-labeled PCDF internal stds. with nos. of Cl-atoms .gtoreq. 6 during **Soxhlet**-extn. of sample3 of electrofilter ash with toluene.

ST photodegrdn internal std chlorodibenzufuran detn

IT Air analysis
Air pollution
(photodegrdn. of polychlorinated dibenzofuran internal std. during **Soxhlet**-extn. in anal.)

IT Aromatic hydrocarbons, analysis

RL: ANT (Analyte); POL (Pollutant); ANST (Analytical study); OCCU (Occurrence)
(polycyclic, photodegrdn. of polychlorinated dibenzofuran internal std. during **Soxhlet**-extn. in anal.)

IT 1746-01-6 3268-87-9 19408-74-3, 1,2,3,7,8,9-Hexachlorodibenzodioxin 35822-46-9, 1,2,3,4,6,7,8-Heptachlorodibenzodioxin 39001-02-0 39227-28-6, 1,2,3,4,7,8-Hexachlorodibenzodioxin 40321-76-4, 1,2,3,7,8-Pentachlorodibenzodioxin 51207-31-9, 2,3,7,8-Tetrachlorodibenzofuran 57117-31-4, 2,3,4,7,8-Pentachlorodibenzofuran 57117-41-6, 1,2,3,7,8-Pentachlorodibenzofuran 57117-44-9, 1,2,3,6,7,8-Hexachlorodibenzofuran 57653-85-7, 1,2,3,6,7,8-Hexachlorodibenzodioxin 60851-34-5, 2,3,4,6,7,8-Hexachlorodibenzofuran 67562-39-4, 1,2,3,4,6,7,8-Heptachlorodibenzofuran 70648-26-9, 1,2,3,4,7,8-Hexachlorodibenzofuran
RL: ANT (Analyte); POL (Pollutant); ANST (Analytical study); OCCU (Occurrence)
(photodegrdn. of polychlorinated dibenzofuran internal std. during **Soxhlet**-extn. in anal.)

L16 ANSWER 3 OF 4 CA COPYRIGHT 2002 ACS
AN 116:200535 CA
TI "Bound" 6,10,14-trimethylpentadecan-2-one: a useful marker for **photodegradation** of chlorophylls with a phytol ester group in seawater
AU Rontani, J. F.; Giral, P. J. P.; Baillet, G.; Raphel, D.
CS Cent. Oceanol. Marseille, Fac. Sci. Luminy, Marseille, 13288, Fr.
SO Org. Geochem. (1992), 18(1), 139-42
CODEN: ORGEDE; ISSN: 0146-6380
DT Journal
LA English
CC 61-1 (Water)
Section cross-reference(s): 53
AB Photodegrdn. of chlorophyll a in seawater leads to the formation of some relatively stable photoproducts, acidic or alk. hydrolysis of which yields 6,10,14-trimethylpentadecan-2-one (I). Due to their high polarity, these compds. are not extd. during **Soxhlet** extn. of sediments with CHCl3, but can be recovered in part in the form of I after acidic and alk. hydrolysis of the **Soxhlet** extn. residues. Hence, the use of this bound ketone as a marker for the photodegrdn. of chlorophylls with a phytol ester group in the marine environment is suggested.
ST chlorophyll a photodegrdn seawater; marine sediment ketone chlorophyll photodegrdn marker
IT Photolysis
(of chlorophylls, in seawater, bound trimethylentadecan-2-one in sediments as marker for)
IT Waters, ocean
(photodegrdn. of chlorophylls in, bound trimethylpentadecan-2-one in sediments as marker for)
IT Geological sediments
(marine, bound trimethylpentadecan-2-one in, photodegrdn. of chlorophylls in seawater in relation to)
IT 502-69-2P, 6,10,14-Trimethylpentadecan-2-one
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, from acidic or alk. hydrolysis of chlorophyll a photoproducts, seawater sediment marker for chlorophyll photodegrdn. in relation to)
IT 479-61-8
RL: RCT (Reactant)
(photodegrdn. of, in seawater, bound trimethylpentadecan-2-one in sediments as marker for)

L16 ANSWER 4 OF 4 CA COPYRIGHT 2002 ACS
AN 96:201644 CA
TI Automatic stirring solid-liquid extraction-recrystallization apparatus

AU Miyamoto, Masatoshi; Nara, Osamu
CS Tohoku Coll. Pharm., Sendai, Japan
SO Bunseki Kagaku (1982), 31(3), 109-14
CODEN: BNSKAK; ISSN: 0525-1931
DT Journal
LA Japanese
CC 47-1 (Apparatus and Plant Equipment)
AB An automatic solid-liq. extn.-recrystn. app. is described. The recrystn. assembly can be converted into an extn. assembly by replacing the flask and the heater with ordinary ones. A filter paper thimble is placed firmly between the filter plug and the socket. The contents in the extn. chamber are heated by solvent vapors and stirred to increase the extn. efficiency. The extn. is faster and more effective than those with **Soxhlet** extractor because of the vertical and thick vapor duct formation. The use of fire-polished precision joints results in a leak-tight app. which can be used for long runs without any supplemental solvent. The app. is esp. suitable for the recrystn. of slightly sol. or **photodegradative** compds.
ST extn recrystn app
IT Crystallization apparatus
Extraction apparatus
(with automatic stirring)

=> s his
L17 43737 HIS

=> d his

(FILE 'HOME' ENTERED AT 15:16:16 ON 23 MAY 2002)

FILE 'CA' ENTERED AT 15:16:23 ON 23 MAY 2002
L1 13 S CHEM? (5A) AMPLI? AND FRACTIONAT?

FILE 'USPATFULL, USPAT2' ENTERED AT 15:19:28 ON 23 MAY 2002
L2 277 S L1
L3 0 S L2 AND SOXHLET
L4 0 S CHEM? (5A) AMPLI? AND SOXLET
L5 6 S CHEM? (5A) AMPLI? AND SOXHLET

FILE 'REGISTRY' ENTERED AT 15:21:43 ON 23 MAY 2002
L6 0 S POLYVINYLPHENOL/CN
L7 0 S POLYVINYL PHENOL/CN
L8 0 S POLY VINYL PHENOL/CN
L9 378 S HYDROXYSTYRENE
L10 1 S HYDROXYSTYRENE/CN
L11 201 S 31257-96-2/CRN

FILE 'CA' ENTERED AT 15:22:47 ON 23 MAY 2002
L12 0 S L11 AND SOXHLET
L13 3 S NOVOLAK AND SOXHLET
L14 0 S CHEM? (5A) AMPLI? AND SOXHLET
L15 150 S PHOTO? AND SOXHLET
L16 4 S PHOTODEGRAD? AND SOXHLET
L17 43737 S HIS

=> s l15 and polymer?
1409805 POLYMER?
L18 23 L15 AND POLYMER?

=> d ti 1-23

L18 ANSWER 1 OF 23 CA COPYRIGHT 2002 ACS
TI Purification of core-shell graft **polymers**, and

electrophotographic **photoreceptors**, apparatus, and process cartridges using them with good durability

L18 ANSWER 2 OF 23 CA COPYRIGHT 2002 ACS
TI Analysis of additives in a polycarbonate

L18 ANSWER 3 OF 23 CA COPYRIGHT 2002 ACS
TI Employing MALDI-MS on Poly(alkylthiophenes): Analysis of Molecular Weights, Molecular Weight Distributions, End-Group Structures, and End-Group Modifications

L18 ANSWER 4 OF 23 CA COPYRIGHT 2002 ACS
TI Surface plasmon resonance sensors using molecularly imprinted **polymers** for sorbent assay of theophylline, caffeine, and xanthine

L18 ANSWER 5 OF 23 CA COPYRIGHT 2002 ACS
TI A study of epoxy resin-acrylated polyurethane semi-interpenetrating **polymer** networks

L18 ANSWER 6 OF 23 CA COPYRIGHT 2002 ACS
TI **Photoconductive** properties of cadmium selenide encapsulated in **polymers**

L18 ANSWER 7 OF 23 CA COPYRIGHT 2002 ACS
TI X-ray **photoelectron** spectroscopy of chemithermomechanical pulp grafted with polyacrylonitrile

L18 ANSWER 8 OF 23 CA COPYRIGHT 2002 ACS
TI Radiation-curable polyurethane acrylates and their use in coil coatings

L18 ANSWER 9 OF 23 CA COPYRIGHT 2002 ACS
TI Solution processible forms of neutral and electrically conductive poly(substituted heterocycles)

L18 ANSWER 10 OF 23 CA COPYRIGHT 2002 ACS
TI Coloring agents for electrophotography

L18 ANSWER 11 OF 23 CA COPYRIGHT 2002 ACS
TI On soluble **polymer** fractions in **photohardened** PVA-ammonium dichromate films

L18 ANSWER 12 OF 23 CA COPYRIGHT 2002 ACS
TI Electrophotographic **photoconductive** composition for deformation imaging process

L18 ANSWER 13 OF 23 CA COPYRIGHT 2002 ACS
TI Sensitized **photoconductive** composition

L18 ANSWER 14 OF 23 CA COPYRIGHT 2002 ACS
TI Effect of corona treatment on composite formation. Adhesion between incompatible **polymers**

L18 ANSWER 15 OF 23 CA COPYRIGHT 2002 ACS
TI Effect of solvent on morphology of poly(4-methyl-1-pentene) single crystals crystallized from various solvents

L18 ANSWER 16 OF 23 CA COPYRIGHT 2002 ACS
TI Analysis of poly(vinyl chloride) blends

L18 ANSWER 17 OF 23 CA COPYRIGHT 2002 ACS
TI Organometallic semiconductor materials

L18 ANSWER 18 OF 23 CA COPYRIGHT 2002 ACS
TI Synthesis of organosilicon compounds. XVI. Organometallic synthesis of

silicon-methylene compounds with functional groups and their ring-closing to (SiMe2CH2)4

L18 ANSWER 19 OF 23 CA COPYRIGHT 2002 ACS
TI Study of the diffusion of dyes in **polymer** films by a microdensitometric technique

L18 ANSWER 20 OF 23 CA COPYRIGHT 2002 ACS
TI Bi(anthracene-9,10-dimethylene) (tetrabenzo [2.2]paracyclophane)

L18 ANSWER 21 OF 23 CA COPYRIGHT 2002 ACS
TI Ultraviolet-absorbing **polymeric** esters in **photographic** materials

L18 ANSWER 22 OF 23 CA COPYRIGHT 2002 ACS
TI **Photochemical** degradation of nylon 6. I

L18 ANSWER 23 OF 23 CA COPYRIGHT 2002 ACS
TI Nondiffusing **polymeric** reducing agents for **photographic** color emulsions

=> d his

(FILE 'HOME' ENTERED AT 15:16:16 ON 23 MAY 2002)

FILE 'CA' ENTERED AT 15:16:23 ON 23 MAY 2002
L1 13 S CHEM? (5A) AMPLI? AND FRACTIONAT?

FILE 'USPATFULL, USPAT2' ENTERED AT 15:19:28 ON 23 MAY 2002
L2 277 S L1
L3 0 S L2 AND SOXHLET
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L5 6 S CHEM? (5A) AMPLI? AND SOXHLET

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L9 378 S HYDROXYSTYRENE
L10 1 S HYDROXYSTYRENE/CN
L11 201 S 31257-96-2/CRN

FILE 'CA' ENTERED AT 15:22:47 ON 23 MAY 2002
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L13 3 S NOVOLAK AND SOXHLET
L14 0 S CHEM? (5A) AMPLI? AND SOXHLET
L15 150 S PHOTO? AND SOXHLET
L16 4 S PHOTODEGRAD? AND SOXHLET
L17 43737 S HIS
L18 23 S L15 AND POLYMER?

=> s l4 and extract?
2074718 CHEM?
257063 AMPLI?
4193 CHEM? (5A) AMPLI?
44 SOXLET
216244 EXTRACT?
L19 0 L4 AND EXTRACT?

=> s l4 and anisole
2074718 CHEM?
257063 AMPLI?
4193 CHEM? (5A) AMPLI?

```
           44 SOXLET
         9967 ANISOLE
L20         0 L4 AND ANISOLE

=> file reg
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    57.40     111.29

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STRUCTURE FILE UPDATES:   21 MAY 2002  HIGHEST RN 420086-04-0
DICTIONARY FILE UPDATES:  21 MAY 2002  HIGHEST RN 420086-04-0

TSCA INFORMATION NOW CURRENT THROUGH July 7, 2001

  Please note that search-term pricing does apply when
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Crossover limits have been increased.  See HELP CROSSOVER for details.

Calculated physical property data is now available.  See HELP PROPERTIES
for more information.  See STNote 27, Searching Properties in the CAS
Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> s anisole/cn
L21           1 ANISOLE/CN

=> d

L21  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2002 ACS
RN   100-66-3  REGISTRY
CN   Benzene, methoxy- (9CI)  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   Anisole (8CI)
OTHER NAMES:
CN   Anisol
CN   Methoxybenzene
CN   Methyl phenyl ether
CN   Phenoxymethane
CN   Phenyl methyl ether
FS   3D CONCORD
MF   C7 H8 O
CI   COM
LC   STN Files:   AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS,
       BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
       CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*,
       DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,
       GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
       MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO,
       SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
         (*File contains numerically searchable property data)
     Other Sources:   DSL**, EINECS**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)
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Me—O—Ph

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

7859 REFERENCES IN FILE CA (1967 TO DATE)
164 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
7873 REFERENCES IN FILE CAPLUS (1967 TO DATE)
6 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> file ca

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	5.96	117.25

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-6.49

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FILE COVERS 1907 - 16 May 2002 VOL 136 ISS 21
FILE LAST UPDATED: 16 May 2002 (20020516/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

=> d his

(FILE 'HOME' ENTERED AT 15:16:16 ON 23 MAY 2002)

FILE 'CA' ENTERED AT 15:16:23 ON 23 MAY 2002
L1 13 S CHEM? (5A) AMPLI? AND FRACTIONAT?

FILE 'USPATFULL, USPAT2' ENTERED AT 15:19:28 ON 23 MAY 2002
L2 277 S L1
L3 0 S L2 AND SOXHLET
L4 0 S CHEM? (5A) AMPLI? AND SOXLET
L5 6 S CHEM? (5A) AMPLI? AND SOXHLET

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L7 0 S POLYVINYL PHENOL/CN

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L8            0 S POLY VINYL PHENOL/CN
L9          378 S HYDROXYSTYRENE
L10           1 S HYDROXYSTYRENE/CN
L11         201 S 31257-96-2/CRN

     FILE 'CA' ENTERED AT 15:22:47 ON 23 MAY 2002
L12           0 S L11 AND SOXHLET
L13           3 S NOVOLAK AND SOXHLET
L14           0 S CHEM? (5A) AMPLI? AND SOXHLET
L15         150 S PHOTO? AND SOXHLET
L16           4 S PHOTODEGRAD? AND SOXHLET
L17       43737 S HIS
L18          23 S L15 AND POLYMER?
L19           0 S L4 AND EXTRACT?
L20           0 S L4 AND ANISOLE

     FILE 'REGISTRY' ENTERED AT 15:27:23 ON 23 MAY 2002
L21           1 S ANISOLE/CN

     FILE 'CA' ENTERED AT 15:28:01 ON 23 MAY 2002

=> s l21 and l4
          7862 L21
       2074718 CHEM?
        257063 AMPLI?
          4193 CHEM? (5A) AMPLI?
            44 SOXLET
L22           0 L21 AND L4

=> s chem? (5a) ampli? and l21
       2074718 CHEM?
        257063 AMPLI?
          4193 CHEM? (5A) AMPLI?
          7862 L21
L23           9 CHEM? (5A) AMPLI? AND L21

=> d all 1-9

L23  ANSWER 1 OF 9  CA  COPYRIGHT 2002 ACS
AN   135:68564  CA
TI   Negative radiation-sensitive chemically amplified
     resin composition
IN   Kai, Toshiyuki; Wang, Yong; Kusumoto, Shirou; Ohta, Yoshihisa
PA   Jsr Corp., Japan
SO   Eur. Pat. Appl., 15 pp.
     CODEN: EPXXDW
DT   Patent
LA   English
IC   ICM  G03F007-038
     ICS  G03F007-004
CC   74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
     Reprographic Processes)
FAN.CNT 1
     PATENT NO.        KIND  DATE           APPLICATION NO.  DATE
     --------------    ----  --------       ---------------  --------
PI   EP 1111465         A1   20010627       EP 2000-128363   20001222
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO
     JP 2001183832      A2   20010706       JP 1999-367575   19991224
     US 2001006758      A1   20010705       US 2000-741334   20001221
PRAI JP 1999-367575     A    19991224
OS   MARPAT 135:68564
AB   A neg. radiation-sensitive resin compn. comprises: (A) an alkali-sol.
     resin contg. a copolymer selected from the group consisting of a
```

hydroxystyrene/styrene copolymer having hydroxystyrene units in a content of from 65 to 90 mol% and a hydroxystyrene/.alpha.-methylstyrene copolymer having hydroxystyrene units in a content of from 65 to 90 mol%, (B) a radiation-sensitive acid-generating agent contg. a hydroxyl group-contg. onium salt compd., and (C) a crosslinking agent contg. an N-(alkoxymethyl)glycoluril compd. The compn. is suitable as a **chem. amplified** neg. resist, to which alk. developing solns. having usual concn. are applicable and which can form, in usual line-and-space patterns, resist patterns having a rectangular cross-sectional shape in a high resoln. and also has superior sensitivity, developability and dimensional fidelity.

ST photoresist neg **chem amplified** compn acid generating agent; photolithog photoresist neg **chem amplified** compn

IT Negative photoresists
Photolithography
(neg. radiation-sensitive **chem. amplified** resin compn.)

IT 1116-76-3, Tri-n-octylamine 345580-99-6, processes 345581-00-2, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(acid-diffusion control agent; neg. radiation-sensitive **chem. amplified** resin compn. comprising)

IT 141801-36-7P 157692-56-3P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(acid-generating agent; neg. radiation-sensitive **chem. amplified** resin compn. comprising)

IT 17464-88-9
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(crosslinking agent; neg. radiation-sensitive **chem. amplified** resin compn. comprising)

IT 75-75-2, Methanesulfonic acid **100-66-3**, Anisole, reactions 657-84-1, Sodium p-toluenesulfonate 945-51-7, Diphenyl sulfoxide 2926-27-4, Potassium trifluoromethanesulfonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of acid-generating agent)

IT 116808-67-4P 345580-98-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in prepn. of acid-generating agent)

IT 24979-74-6, p-Hydroxystyrene-styrene copolymer 127523-21-1, p-Hydroxystyrene-.alpha.-methylstyrene copolymer
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(neg. radiation-sensitive **chem. amplified** resin compn. comprising)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; PATENT ABSTRACTS OF JAPAN 1998, V1998(04)
(2) Fuji Photo Film Co Ltd; JP 09309874 A 1997 CA
(3) Japan Synthetic Rubber Co Ltd; EP 0849634 A 1998 CA
(4) Nippon Gosei Gomu Kk; JP 10254135 A 1998 CA

L23 ANSWER 2 OF 9 CA COPYRIGHT 2002 ACS

AN 133:367838 CA

TI Oxime derivatives, **chemically amplified** photoresists containing them as latent acids, and their use

IN Asakura, Toshikage; Yamato, Hitoshi; Ohwa, Masaki; Birbaum, Jean-Luc; Dietliker, Kurt; Tanabe, Junichi

PA Ciba Specialty Chemicals Holding, Inc., Switz.

SO Jpn. Kokai Tokkyo Koho, 63 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G03F007-004
ICS G03F007-004; C07C309-65; C07C309-66; C07C309-73; C07C309-74; C07C309-75; C07C323-47; C07C323-64; C08J003-24; C08K005-33; C08L101-02; C08L101-12; G03F007-038; G03F007-039; G03F007-38
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 24, 25
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000314956	A2	20001114	JP 2000-92758	20000330
	NL 1014545	A1	20001003	NL 2000-1014545	20000302
	NL 1014545	C2	20020226		
	FI 2000000677	A	20000930	FI 2000-677	20000323
	SE 2000001090	A	20001001	SE 2000-1090	20000328
	GB 2348644	A1	20001011	GB 2000-7353	20000328
	GB 2348644	B2	20010606		
	CA 2302875	AA	20000930	CA 2000-2302875	20000329
	FR 2794252	A1	20001201	FR 2000-4035	20000330
	BR 2000001509	A	20010403	BR 2000-1509	20000331
PRAI	EP 1999-810273	A	19990331		
	EP 1999-810287	A	19990407		
	EP 1999-810779	A	19990830		

OS MARPAT 133:367838
AB The **chem**. **amplified** photoresists (pos. or neg.) comprise (a) compds. that harden or dissolve by acid and .gtoreq.1 photosensitive acid donors selected from R3ON:CR1CR2X2 (I), R11[(C:NOR3)CR2X2]2 (II), and R13(ON:CR1CR2X2)2 (III) (R1 = H, (un)substituted alkyl, etc.; R2 = halogen, C1-10 haloalkyl; R3 = C1-18 alkylsulfonyl, C2-6 haloalkanoyl, etc.; R11 = C1-12 alkylene, etc.; R13 = phenylenedisulfonal, etc.; X = halogen). Also claimed are I (R2 = X = F), II (R2 = X = F), and III (R2 = X = F) and prepn. of their thermally stable isomers, and development and photoimaging of the photoresists.
ST photosensitive acid generator oxime deriv; pos **chem** **amplified** photoresist latent acid; neg **chem** **amplified** photoresist latent acid
IT Photoresists
(**chem**.-**amplified**; oxime derivs. for photosensitive acid donors in **chem**. **amplified** photoresists)
IT Photolithography
(oxime derivs. for photosensitive acid donors in **chem**. **amplified** photoresists)
IT Aminoplasts
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photoresist compns.; oxime derivs. for photosensitive acid donors in **chem**. **amplified** photoresists)
IT Oximes
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(sulfonates; oxime derivs. for photosensitive acid donors in **chem**. **amplified** photoresists)
IT 200808-68-0, tert-Butyl acrylate-p-hydroxystyrene-styrene copolymer
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(Maruka Lyncur PHS/STY/TBA, photoresist compns.; oxime derivs. for photosensitive acid donors in **chem**. **amplified** photoresists)
IT 83163-79-5P 98503-50-5P 135481-98-0P 300373-66-4P 300373-68-6P

300373-69-7P 300373-70-0P 300373-71-1P 300373-75-5P 300373-76-6P
300373-78-8P 300373-79-9P 300373-80-2P 300373-81-3P 300373-82-4P
300373-86-8P 300373-88-0P 300373-90-4P 300373-91-5P 300373-92-6P
300373-93-7P 300373-94-8P 300373-96-0P 300374-08-7P 300374-09-8P
300374-11-2P 300374-14-5P 300374-15-6P 300374-18-9P 300374-20-3P
300374-28-1P 300374-30-5P 300374-31-6P 300374-32-7P 300374-34-9P
300374-36-1P 300374-37-2P 300374-39-4P 300374-41-8P 300374-43-0P
300374-45-2P 300374-46-3P 300374-70-3P 300374-71-4P 300374-72-5P
300374-73-6P 300374-75-8P 300374-77-0P 300374-79-2P 300374-81-6P
307306-87-2P 307306-88-3P 307306-89-4P 307306-90-7P 307306-91-8P
307306-92-9P 307306-93-0P 307306-94-1P 307306-95-2P 307306-96-3P
307306-97-4P 307306-98-5P 307306-99-6P 307312-61-4P 307312-62-5P
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(oxime derivs. for photosensitive acid donors in **chem.** **amplified** photoresists)

IT 24979-70-2, Poly(4-hydroxystyrene)
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(oxime derivs. for photosensitive acid donors in **chem.** **amplified** photoresists)

IT 387-57-5P 655-25-4P 711-38-6P, 2,2,2-Trifluoro-1-(4-methoxyphenyl)ethanone 75703-25-2P 83163-75-1P 83163-76-2P
149774-08-3P 253585-96-5P 300374-85-0P 300374-86-1P 300374-87-2P
300374-88-3P 300374-90-7P 300374-92-9P 300374-94-1P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(oxime derivs. for photosensitive acid donors in **chem.** **amplified** photoresists)

IT 85-46-1, 1-Naphthylsulfonyl chloride 91-16-7 93-11-8, 2-Naphthylsulfonyl chloride 95-46-5, 2-Bromotoluene 98-68-0, 4-Methoxyphenylsulfonyl chloride **100-66-3**, reactions 100-68-5, Thioanisole 108-38-3, reactions 108-67-8, Mesitylene, reactions 108-88-3, Toluene, reactions 124-63-0, Methylsulfonyl chloride 151-10-0 383-63-1, Ethyl trifluoroacetate 407-25-0, Trifluoroacetic acid anhydride 434-45-7, 2,2,2-Trifluoro-1-phenylethanone 585-47-7, 1,3-Benzenedisulfonyl dichloride 773-64-8, 2,4,6-Trimethylphenylsulfonyl chloride 4552-50-5 10147-36-1, Propylsulfonyl chloride 307307-00-2 307307-01-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxime derivs. for photosensitive acid donors in **chem.** **amplified** photoresists)

IT 9011-05-6, MX 290
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photoresist compns.; oxime derivs. for photosensitive acid donors in **chem.** **amplified** photoresists)

L23 ANSWER 3 OF 9 CA COPYRIGHT 2002 ACS
AN 133:288877 CA
TI Oxime derivates and their use as photosensitive acid donors in **chemically amplified** photoresist compositions.
IN Asakura, Toshikage; Yamato, Hitoshi; Ohwa, Masaki; Birbaum, Jean-Luc; Dietliker, Kurt; Tanabe, Junichi
PA Ciba Specialty Chemicals Holding Inc., Switz.
SO Ger. Offen., 62 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10015255	A1	20001005	DE 2000-10015255	20000328
PRAI	DE 1999-99810273	A1	19990331		
	DE 1999-99810287	A1	19990407		
	DE 1999-99810779	A1	19990830		

OS MARPAT 133:288877

AB **Chem. amplified** photoresist compns. are described which contains a compd. that is hardenable under the effect of an acid or becomes more sol. under the effect of an acid and an oxime deriv. as a photosensitive acid donor. Thus, a compn. contg. Maruka Lyncur PHS/STY/TBA copolymer, FC 340 flow agent, propylene glycol Me ether acetate, and 2,2,2-trifluoro-1-phenylethanone oxime O-(2,4,6-trimethylphenylsulfonate) was coated on a Si wafer to give a pos.-working resist, dried, UV exposed, heated and then developed with aq. tetramethylammonium hydroxide soln. to show a clearing dose of 0.10 mJ/cm2.

ST oxime photosensitive acid donor **chem amplified** photoresist

IT Photoresists
(photosensitive acid donors in **chem. amplified** photoresist compns.)

IT Oximes
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photosensitive acid donors in **chem. amplified** photoresist compns.)

IT Aminoplasts
RL: TEM (Technical or engineered material use); USES (Uses)
(photosensitive acid donors in **chem. amplified** photoresist compns.)

IT 135481-98-0P 300373-66-4P 300373-67-5P 300373-68-6P 300373-71-1P
300373-77-7P 300373-79-9P 300373-80-2P 300373-81-3P 300373-82-4P
300373-88-0P 300373-90-4P 300373-91-5P 300373-94-8P 300374-16-7P
300374-18-9P 300374-20-3P 300374-22-5P 300374-24-7P 300374-26-9P
300374-28-1P 300374-30-5P 300374-31-6P 300374-32-7P 300374-34-9P
300374-36-1P 300374-37-2P 300374-39-4P 300374-41-8P 300374-43-0P
300374-45-2P 300374-46-3P 300374-48-5P 300374-50-9P 300374-52-1P
300374-56-5P 300374-58-7P 300374-59-8P 300374-60-1P 300374-61-2P
300374-64-5P 300374-65-6P 300374-67-8P 300374-70-3P 300374-71-4P
300374-74-7P 300374-75-8P 300374-76-9P 300374-78-1P 300374-82-7P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photosensitive acid donors in **chem. amplified** photoresist compns.)

IT 85-46-1, 1-Naphthylsulfonyl chloride 91-16-7 93-11-8, 2-Naphthylsulfonyl chloride 95-46-5, 2-Bromotoluene 98-68-0, 4-Methoxyphenylsulfonyl chloride **100-66-3**, reactions 100-68-5, Thioanisole 108-38-3, reactions 108-67-8, Mesitylene, reactions 108-88-3, Toluene, reactions 124-63-0, Methylsulfonyl chloride 383-63-1, Ethyl trifluoroacetate 407-25-0, Trifluoroacetic acid anhydride 726-44-3, 1,3-Diphenoxypropane 773-64-8, 2,4,6-Trimethylphenylsulfonyl chloride 5470-11-1, Hydroxylammonium chloride 10147-36-1, 1-Propanesulfonyl chloride 21286-54-4, 10-Camphorsulfonyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(photosensitive acid donors in **chem. amplified** photoresist compns.)

IT 313-56-4P 341-39-9P 387-57-5P 394-59-2P 434-45-7P, 2,2,2-Trifluoro-1-phenylethanone 559-91-1P 655-25-4P 711-38-6P, 2,2,2-Trifluoro-1-(4-methoxyphenyl)ethanone 16184-87-5P 70783-32-3P 75703-25-2P 83163-75-1P 83163-76-2P 83163-79-5P 92512-69-1P 98503-50-5P 122243-33-8P 149774-08-3P 175698-47-2P 253585-96-5P 300373-69-7P 300373-70-0P 300373-72-2P 300373-73-3P 300373-74-4P

300373-75-5P 300373-76-6P 300373-78-8P 300373-84-6P 300373-86-8P
300373-92-6P 300373-93-7P 300373-96-0P 300374-00-9P 300374-01-0P
300374-02-1P 300374-06-5P 300374-08-7P 300374-09-8P 300374-11-2P
300374-14-5P 300374-15-6P 300374-51-0P 300374-63-4P 300374-66-7P
300374-68-9P 300374-69-0P 300374-72-5P 300374-73-6P 300374-77-0P
300374-79-2P 300374-80-5P 300374-81-6P 300374-83-8P 300374-84-9P
300374-85-0P 300374-86-1P 300374-87-2P 300374-88-3P 300374-89-4P
300374-90-7P 300374-91-8P 300374-92-9P 300374-93-0P 300374-94-1P
300374-95-2P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photosensitive acid donors in **chem. amplified** photoresist compns.)

IT 9011-05-6, MX 290 24979-70-2, VP 8000 200808-68-0, p-Hydroxystyrene-styrene-tert-butyl acrylate copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(photosensitive acid donors in **chem. amplified** photoresist compns.)

L23 ANSWER 4 OF 9 CA COPYRIGHT 2002 ACS
AN 132:173280 CA
TI Sub-100 nm lithography with KrF exposure using multiple development method
AU Asano, Masafumi
CS Microelectronics Engineering Laboratory, Toshiba Corp., Yokohama, 235-8522, Japan
SO Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (1999), 38(12B), 6999-7003
CODEN: JAPNDE; ISSN: 0021-4922
PB Japanese Journal of Applied Physics
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
AB In this paper, a novel resist process technique using a **chem. amplified** resist with a multiple development method for improving photolithog. resoln. is described. Resist lines are formed at the edge position between the bright and dark fields of a photomask, and the repeating frequency that is more than the cut-off frequency of optics (.nu.c = 1/Pc = 2NA/.lambda.) can be delineated using a conventional exposure system. In the expt., a grating resist pattern with a pitch of 200 nm was obtained using a conventional 0.6NA KrF exposure system and a 400 nm pitch photomask pattern. The pitch was less than the diffraction limit of 207 nm (= 0.5.lambda./NA) in the optical system used, which cannot be realized by a conventional resist process even with resoln. enhancement techniques such as off-axis illumination and phase-shifting mask.
ST photolithog **chem amplification** photoresist multiple development
IT Photoresists
(**chem. amplification**; photolithog. method using **chem. amplification** resist with multiple development for improved resoln. with KrF exposure)
IT 75-59-2, Tetramethylammonium hydroxide
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(developer; photolithog. method using **chem. amplification** resist with multiple development for improved resoln. with KrF exposure)
IT 250740-04-6, AR3(antireflective coating)
RL: NUU (Other use, unclassified); USES (Uses)
(photolithog. method using **chem. amplification** resist with multiple development for improved resoln. with KrF exposure)
IT 24979-70-2D, Poly(4-vinylphenol), ter-butoxycarbonyl protected

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photolithog. method using **chem. amplification** resist with multiple development for improved resoln. with KrF exposure)

IT **100-66-3**, Anisole, processes 108-10-1, Methyl isobutyl ketone
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(second developer soln.; photolithog. method using **chem. amplification** resist with multiple development for improved resoln. with KrF exposure)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Azuma, T; J Vac Sci Technol B 1997, V15, P2434 CA
(2) Azuma, T; J Vac Sci Technol B 1998, V16, P3734 CA
(3) Ito, H; Macromolecules 1988, V21, P1474
(4) Ito, H; Proc SPIE 1987, V771, P24 CA
(5) Ito, H; Proc SPIE 1989, V1086, P11 CA
(6) Kamon, K; Jpn J Appl Phys 1993, V32, P239 CA
(7) Levenson, M; IEEE Trans Electron Devices 1982, VED-29, P1812
(8) Lin, B; Solid State Technol 1992, V35, P43
(9) Nitayama, A; Int Electron Device Meet Tech Dig 1989, P57
(10) Noguchi, M; Proc SPIE 1992, V1674, P92 CA
(11) Shiraishi, N; Proc SPIE 1992, V1674, P741 CA
(12) Tanenbaum, D; J Vac Sci Technol B 1996, V14, P3829 CA
(13) Terasawa, T; Proc SPIE 1989, V1088, P25 CA
(14) Tounai, K; Proc SPIE 1992, V1674, P753 CA

L23 ANSWER 5 OF 9 CA COPYRIGHT 2002 ACS

AN 132:93801 CA

TI Sulfonium salt and its manufacturing method

IN Park, Joo-Hyeon; Seo, Dong-Chul; Park, Sun-Ju; Kim, Seong-Ju

PA Korea Kumho Petrochemical Co. Ltd., S. Korea

SO Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW

DT Patent

LA English

IC ICM C07C381-12

CC 35-3 (Chemistry of Synthetic High Polymers)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 972761	A1	20000119	EP 1999-305552	19990713
	EP 972761	B1	20011212		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	KR 2000008811	A	20000215	KR 1998-28833	19980716
	US 6111143	A	20000829	US 1998-140955	19980827
	JP 2000034274	A2	20000202	JP 1998-266991	19980921
	JP 2992517	B2	19991220		
	JP 2000044535	A2	20000215	JP 1999-234035	19980921
	AT 210641	E	20011215	AT 1999-305552	19990713
	CN 1243122	A	20000202	CN 1999-110490	19990716
PRAI	KR 1998-28833	A	19980716		
	EP 1998-307103	A	19980903		
	JP 1998-266991	A3	19980921		

OS MARPAT 132:93801

AB This invention relates to a sulfonium salt, including its manufg. method, which is effectively used as a photoacid initiator or radical photoinitiator during polymn. and a photoacid generator, leaving the protection groups of org. compds., esp. as an useful photoacid generator of the **chem. amplified** photoresist employed in semiconductor materials. Since the sulfonium salt of this invention, so prepd. via one-step reaction between sulfoxide compd. and arom. compd. in the presence of perfluoroalkanesulfonic anhydride, has the advantages in

that by overcoming some shortcomings of the prior art to prep. the sulfonium salt via two steps using Grignard reagent, this invention may provide a novel sulfonium salt with higher yield which cannot be achieved in the prior art and also to prep. even any conventional sulfonium salt having better yield. Ph sulfoxide dissolved in toluene was stirred at room temp. with a slow addn. of triflic anhydride and further stirred for 1 h. Then, the sulfonium salt contained in the reacting mixt. was extd. with distd. water and further, toluene used as a solvent and reactant was removed. The sulfonium salt, so extd. with distd. water, was re-extd. with dichloromethane into org. layer and then, the extn. solvent dichloromethane was removed under pressure. After the solvent was completely removed, an oil phase with larger viscosity was obtained. The oil phase, so formed, was completely dissolved in dichloromethane and with a slow addn. of ether, a white ppt. was obtained. The white ppt. was filtered and dried by vacuum oven to obtain the sulfonium salt in a white solid.

ST sulfonium salt photoacid initiator; photoresist sulfonium salt initiator

IT Sulfonium compounds
RL: IMF (Industrial manufacture); PREP (Preparation)
(sulfonium salt and its manufg. method)

IT 66003-78-9P, Triphenylsulfonium triflate 81416-37-7P 111281-12-0P
116808-67-4P 116808-69-6P 133872-97-6P 145612-66-4P 154093-57-9P
180801-55-2P 187868-29-7P 195245-87-5P 240482-96-6P 255056-42-9P
255056-43-0P 255056-44-1P 255056-46-3P 255056-48-5P 255056-50-9P
255056-53-2P 255056-55-4P 255062-44-3P 255062-46-5P
RL: IMF (Industrial manufacture); PREP (Preparation)
(sulfonium salt and its manufg. method)

IT 67-68-5, Methyl sulfoxide, reactions 71-43-2, Benzene, reactions
85-01-8, Phenanthrene, reactions 91-20-3, Naphthalene, reactions
98-06-6, tert-Butylbenzene **100-66-3**, Anisole, reactions
100-68-5, Thioanisole 101-84-8, Phenyl ether 108-86-1, Bromobenzene, reactions 108-88-3, reactions 108-90-7, Chlorobenzene, reactions
129-00-0, Pyrene, reactions 139-66-2, Phenylsulfide 358-23-6, Triflic anhydride 462-06-6, Fluorobenzene 538-93-2, Isobutyl benzene
591-50-4, Iodobenzene 833-82-9, Benzylphenyl sulfoxide 945-51-7, Phenyl sulfoxide 1193-82-4, Methylphenyl sulfoxide 2168-93-6, Butyl sulfoxide 36304-22-0, tert-Butyl phenoxyacetate 63006-68-8
195965-01-6 255056-51-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(sulfonium salt and its manufg. method)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anonymous; RESEARCH DISCLOSURE 1992, 337, P332
(2) Hitachi Ltd Et Al; JP 04042158 A
(3) Japan Synthetic Rubber Co LTD; JP 08027094 A 1996, 22, CA
(4) Kevill, D; J ORG CHEM 1991, V56(10), P3454 CA
(5) Kim, S; PROC SPIE-INT SOC OPT ENG 1997, V3049, P430 CA
(6) Miller, R; J ORG CHEM 1988, V53(23), P5571 CA
(7) Nenajdenko, V; J ORG CHEM 1997, V62(8), P2483 CA
(8) Nippon Telegraph & Telephone; JP 05232705 A CA
(9) Ohsawa, Y; US 5679496 A 1997 CA
(10) Saeva, F; J AM CHEM SOC 1989, V111(4), P1328 CA
(11) Shinetsu Chem Ind Co; JP 09012537 A 1997, 13, CA
(12) Umemoto, T; J AM CHEM SOC 1993, V115(6), P2156 CA

L23 ANSWER 6 OF 9 CA COPYRIGHT 2002 ACS

AN 122:200975 CA

TI Terpolymers of tosyloxymaleimide for application as a polymeric photoacid generator in single-component resists

AU Chung, Chan-Moon; Koo, Deok-Il; Ahn, Kwang-Duk

CS Functional Polymer Laboratory, Korea Institute of Science and Technology, Seoul, 130-650, S. Korea

SO J. Photopolym. Sci. Technol. (1994), 7(3), 473-82
CODEN: JSTEEW; ISSN: 0914-9244

DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB Terpolymers of sulfonyloxymaleimides have been prepd. as a new class of polymeric photoacid generator and their photochem. and thermal properties were investigated. The styrene copolymers of N-tosyloxymaleimide (TsOMI) produced p-toluenesulfonic acid (TsOH) in solid state by deep UV irradn. and the amt. of generated acid was detd. by using a colorimetric method. Two terpolymers of TsOMI and p-(t-butyloxycarbonyloxy)styrene showed the capability of a single-component, **chem. amplified** resist system in deep UV region. Pos.-and neg.-tone images were obtained with sensitivity of 50 mJ/cm2.
ST tosyloxymaleimide terpolymer photoacid generator monocomponent photoresist; photolysis tosyloxymaleimide terpolymer photoacid generator
IT Photolysis
(of tosyloxymaleimide terpolymer as a polymeric photoacid generator in single-component resists)
IT Resists
(photo-, **chem. amplified**; tosyloxymaleimide terpolymer as single-component resist for deep-UV exposures)
IT 161790-86-9 161790-87-0
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(photochem. and thermal property of tosyloxymaleimide terpolymer polymeric photoacid generator in single-component resists)
IT 108-94-1, Cyclohexanone, uses
RL: NUU (Other use, unclassified); USES (Uses)
(photoresist developer; neg.-tone development of tosyloxymaleimide terpolymer single-component and **chem. amplified** resist with anisole and)
IT **100-66-3**, Anisole, uses
RL: NUU (Other use, unclassified); USES (Uses)
(photoresist developer; neg.-tone development of tosyloxymaleimide terpolymer single-component and **chem. amplified** resist with cyclohexanone and)
IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(photoresist developer; pos.-tone development of tosyloxymaleimide terpolymer single-component and **chem. amplified** resist with)

L23 ANSWER 7 OF 9 CA COPYRIGHT 2002 ACS
AN 117:160649 CA
TI tert-Butoxycarbonylated novolak resins as **chemically amplified** imaging materials
AU Gozdz, Antoni S.; Shelburne, John A., III
CS Bellcore, Red Bank, NJ, 07701, USA
SO Proc. SPIE-Int. Soc. Opt. Eng. (1992), 1672(Adv. Resist Technol. Process. IX), 184-93
CODEN: PSISDG; ISSN: 0277-786X
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB A sensitive, 2-tone, **chem. amplified**, deep-UV and electron-beam resist system was studied. The resist is composed of tert-butoxycarbonylated novolak (tBOC-N) and a photoacid generator (PAG). Preferably, the matrix polymer is synthesized from novolak, from which the low mol. wt. fraction has been removed by fractionation or extn. The polymer is highly transparent at .lambda. >240 nm (OD .simeq. 0.15/.mu.m) and is thermally stable up to .apprx.180.degree.. While the deblocked polymer remains insol. in aq. bases, it can be developed in lower alcs. The dual-tone resist exhibits sensitivity of <5 mJ/cm2 at 254 nm and <3

.mu.C/cm2 at 50 kV. Very high resoln., neg.-tone structures were defined in this resist by electron-beam lithog.

ST novolak butoxycarbonyloxy deriv **chem amplified** resist; lithog photoresist novolak butoxycarbonyloxy deriv

IT Resists
(**chem. amplified**, contg. tert-butoxycarbonylated novolak and photoacid generator)

IT Infrared spectra
Ultraviolet and visible spectra
(of tert-butoxycarbonylated novolak resins)

IT Lithography
(electron-beam, tert-butoxycarbonylated novolak resins as **chem. amplified** resists for deep-UV and)

IT Phenolic resins, uses
RL: USES (Uses)
(novolak, tert-butoxycarbonylated, as **chem. amplified** imaging material)

IT 143636-45-7
RL: USES (Uses)
(**chem. amplified** deep-UV and electron-beam resist system from, sensitive and dual-tone)

IT 66003-78-9
RL: USES (Uses)
(photoacid generator, **chem. amplified** deep-UV and electron-beam resist system contg. tert-butoxycarbonylated novolak resin and)

IT 7782-44-7, Oxygen, properties
RL: PRP (Properties)
(reactive ion etching of tert-butoxycarbonylated novolak resin with)

IT **100-66-3**, Anisol, uses 104-51-8, n-Butylbenzene 105-05-5, p-Diethylbenzene 119-64-2, Tetralin 1330-20-7, Xylene, uses
RL: USES (Uses)
(tert-butoxycarbonylated novolak resin dissoln. in, for deep-UV and electron-beam lithog.)

L23 ANSWER 8 OF 9 CA COPYRIGHT 2002 ACS

AN 113:142069 CA

TI 1X deep UV lithography with **chemical amplification** for 1-micron DRAM production

AU Maltabes, John G.; Holmes, Steven J.; Morrow, James R.; Barr, Roger L.; Hakey, Mark; Reynolds, Gregg; Brunsvold, William R.; Willson, C. Grant; Clecak, Nick; et al.

CS Gen. Technol. Div., IBM, Essex Junction, VT, 05452, USA

SO Proc. SPIE-Int. Soc. Opt. Eng. (1990), 1262(Adv. Resist Technol. Process. 7), 2-7
CODEN: PSISDG; ISSN: 0277-786X

DT Journal

LA English

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

AB Methods used and results are described in the prodn. of 1-megabit (Mb) DRAM chips, using a **chem. amplified** tert-butoxycarbonylhydroxystyrene (t-BOC) resin resist and 1X lithog. The internally developed resist provided high sensitivity and contrast for 1 .mu.m resoln. on a Perkin Elmer Micralign model 500 (PE 500) in the deep UV. The manufg. process had photo limited yield >95% with a throughput of 100 wafers/h.

ST photolithog butoxycarbonylhydroxystyrene polymer DRAM prodn; submicron lithog butoxycarbonylhydroxystyrene polymer DRAM prodn; photoresist butyoxycarbonylhydroxystyrene polymer DRAM prodn; deep UV photoresist butoxycarbonylhydroxystryene polymer

IT Resists
(photo-, polymeric, **chem. amplified**

tert-butyoxycarbonylhydroxystyrene resin, for submicron lithog.)
IT Memory devices
(random-access, prodn. of, deep-UV submicron lithog. with **chem**. **amplification** for 1-.mu.)
IT Lithography
(submicron, deep-UV **chem. amplification**, for DRAM prodn.)
IT 12033-89-5, Silicon nitride, uses and miscellaneous
RL: USES (Uses)
(DRAM prodn. by deep-UV lithog. using oxynitride surface-treated film of)
IT **100-66-3**, Anisole, uses and miscellaneous
RL: USES (Uses)
(developer, in 1-.mu. DRAM prodn. by deep-UV lithog.)
IT 75-46-7, Trifluoromethane
RL: USES (Uses)
(etchant, in DRAM prodn. by deep-UV submicron lithog.)
IT 57840-38-7, Triphenylsulfonium hexafluoroantimonate 87261-04-9
RL: USES (Uses)
(submicron lithog. photoresist contg., for 1-.mu. DRAM prodn.)

L23 ANSWER 9 OF 9 CA COPYRIGHT 2002 ACS
AN 92:157156 CA
TI Determination of trace levels of iron(III) by homogeneous catalysis and gas chromatography
AU Ditzler, Mauri A.; Gutknecht, W. F.
CS Dep. Chem., Coll. Holy Cross, Worcester, MA, 01610, USA
SO Anal. Chem. (1980), 52(4), 614-17
CODEN: ANCHAM; ISSN: 0003-2700
DT Journal
LA English
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 61
AB The detn. of trace levels of Fe3+ is based on the gas chromatog. measurement of o-hydroxyanisole, which is a product of the Fe3+-catalyzed reaction between anisole and H2O2. Under controlled conditions, the amt. of o-hydroxyanisole measured is proportional to the concn. of Fe3+ present in the reaction mixt. The procedure has a detection limit of 0.25 ppb and is linear up to 1000 ppb. A **chem. amplification** factor of 125 is realized with a 10-min reaction time. Of several metal ions tested, only Cu2+ was found to significantly interfere.. The procedure was successfully applied in several practical analyses (e.g. of river water and vitamin tablets).
ST iron trace detn catalytic chromatog; gas chromatog iron detn indirect; anisole oxidn catalytic iron detn; water analysis iron; vitamin analysis iron
IT 7439-89-6, analysis
RL: ANST (Analytical study)
(detn. of traces of, by catalytic oxidn. of anisole and gas chromatog.)
IT **100-66-3**, reactions
RL: RCT (Reactant)
(oxidn. of, iron detn. by catalysis of)

=> d his

(FILE 'HOME' ENTERED AT 15:16:16 ON 23 MAY 2002)

FILE 'CA' ENTERED AT 15:16:23 ON 23 MAY 2002
L1 13 S CHEM? (5A) AMPLI? AND FRACTIONAT?

FILE 'USPATFULL, USPAT2' ENTERED AT 15:19:28 ON 23 MAY 2002
L2 277 S L1
L3 0 S L2 AND SOXHLET

```
L4              0 S CHEM? (5A) AMPLI? AND SOXLET
L5              6 S CHEM? (5A) AMPLI? AND SOXHLET

     FILE 'REGISTRY' ENTERED AT 15:21:43 ON 23 MAY 2002
L6              0 S POLYVINYLPHENOL/CN
L7              0 S POLYVINYL PHENOL/CN
L8              0 S POLY VINYL PHENOL/CN
L9            378 S HYDROXYSTYRENE
L10             1 S HYDROXYSTYRENE/CN
L11           201 S 31257-96-2/CRN

     FILE 'CA' ENTERED AT 15:22:47 ON 23 MAY 2002
L12             0 S L11 AND SOXHLET
L13             3 S NOVOLAK AND SOXHLET
L14             0 S CHEM? (5A) AMPLI? AND SOXHLET
L15           150 S PHOTO? AND SOXHLET
L16             4 S PHOTODEGRAD? AND SOXHLET
L17         43737 S HIS
L18            23 S L15 AND POLYMER?
L19             0 S L4 AND EXTRACT?
L20             0 S L4 AND ANISOLE

     FILE 'REGISTRY' ENTERED AT 15:27:23 ON 23 MAY 2002
L21             1 S ANISOLE/CN

     FILE 'CA' ENTERED AT 15:28:01 ON 23 MAY 2002
L22             0 S L21 AND L4
L23             9 S CHEM? (5A) AMPLI? AND L21

=> log y
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                               31.70     148.95

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)    SINCE FILE      TOTAL
                                                   ENTRY    SESSION
CA SUBSCRIBER PRICE                               -5.31     -11.80

STN INTERNATIONAL LOGOFF AT 15:30:57 ON 23 MAY 2002
```

L6 ANSWER 10 OF 32 CA COPYRIGHT 2002 ACS
AN 135:144701 CA
TI High resolution **photoresist** compositions
IN **Barclay, George G.**; Heumann, Roberg G.; Rutter, Edward W., Jr.; Chen, Jung-kuang R.; Lawson, Margaret C.; Jordhamo, George M.; Hughes, Tiomothy M.; Moreau, Wayne M.; Mewherter, Ann Marie
PA Shipley Co. Llc, USA
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1122607	A1	20010808	EP 2001-301009	20010205
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001272796	A2	20011005	JP 2001-30596	20010207
PRAI	US 2000-180905P	P	20000207		

AB The invention provides **photoresists** and resist preparative methods. Methods of the invention include treatment of a resist resin with methylene chloride or other org. solvent to remove low mol. wt. materials. It has been found that the treated resin can be formulated into resists that provide manufd. electronic devices with significantly reduced defects.
ST **photoresist** resin methylene chloride washing
IT **Photoresists**
Washing
(**Photoresist** compns. org. solvents treatment)
IT 75-09-2, Dichloromethane, uses 100-66-3, Anisole, uses 186585-53-5 200808-68-0, tert-Butyl acrylate-4-hydroxystyrene-styrene copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(**Photoresist** compns. org. solvents treatment)
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Agency Of Ind Sci & Technology; JP 52004833 A 1977
(2) Aoai, T; US 5707776 A 1998 CA
(3) Clariant Int Ltd; WO 9827129 A 1998 CA
(4) Clariant Int Ltd; WO 9827462 A 1998 CA
(5) Clariant Int Ltd; WO 0033137 A 2000 CA
(6) Jsr Corp; EP 0930541 A 1999 CA
(7) Kim, S; US 5389494 A 1995 CA

L21 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS
RN 100-66-3 REGISTRY
CN Benzene, methoxy- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Anisole (8CI)**
OTHER NAMES:
CN Anisol
CN Methoxybenzene
CN Methyl phenyl ether
CN Phenoxymethane
CN Phenyl methyl ether
FS 3D CONCORD
MF C7 H8 O
CI COM
LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

Me—O—Ph

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

7859 REFERENCES IN FILE CA (1967 TO DATE)
164 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
7873 REFERENCES IN FILE CAPLUS (1967 TO DATE)
6 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L35 ANSWER 9 OF 10 CA COPYRIGHT 2003 ACS
AN 131:358093 CA
TI NMR analysis of chemically amplified resist films
AU Ito, Hiroshi; Sherwood, Mark
CS IBM Almaden Research Ctr., San Jose, CA, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (1999), 3678(Pt. 1, Advances in Resist Technology and Processing XVI), 104-115
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB Carbon-13 NMR spectroscopy has been employed in the investigation of ESCAP-related deep-UV resist films. The films were first processed and then dissolved in a deuterated solvent. Quant. data were obtained on the concn. of residual casting solvents as a function of the bake temp. and of storage conditions. In addn. to accurate detn. of the degree of deprotection, side reactions that occur in the resist film such as C- and O-alkylation of the phenol have been quant. analyzed while varying the exposure dose, bake temp., resin structure, and acid generator. Furthermore, **photochem**. decompn. of several acid generators in the resist film was quant. monitored. This paper demonstrates that the C NMR technique can readily provide a wealth of quant. and indispensable information about constituents and chemistries in resist films.
ST NMR analysis chem amplified lithog **photoresist** film
IT NMR (nuclear magnetic resonance)
Photoresists
(NMR anal. of chem. amplified **photoresist** films)
IT **Photolysis**
(NMR anal. of chem. amplified **photoresist** films and **photoproducts** of **photoacid** generators)
IT 9011-14-7, PMMA 24979-70-2, Poly(4-hydroxystyrene) 87261-04-9, Poly(4-tert-butoxycarbonyloxystyrene) **159296-87-4**, tert-Butyl acrylate-4-hydroxystyrene copolymer
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(NMR anal. of chem. amplified **photoresist** films)
IT 97-64-3, Ethyl **lactate** 108-94-1, Cyclohexanone, properties 763-69-9, Ethyl 3-Ethoxypropionate 84540-57-8, Propylene glycol monomethyl ether acetate
RL: PRP (Properties)
(casting solvent; NMR anal. of chem. amplified **photoresist** films)
IT 66003-78-9, Triphenylsulfonium triflate 160309-97-7 218151-20-3 250290-89-2
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**photoacid** generator; NMR anal. of chem. amplified **photoresist** films)
IT 3144-16-9, Camphorsulfonic acid 6163-66-2, tert-Butyl ether 35779-04-5, 4-tert-Butyliodobenzene
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(**photoproduct**; NMR anal. of chem. amplified **photoresist** films and **photoproducts** of **photoacid** generators)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Asakawa, K; J Photopolym Sci Technol 1994, V7, P497 CA
(2) Conley, W; Proc SPIE 1996, V2724, P34 CA
(3) Conley, W; Proc SPIE 1997, V3049, P282 CA
(4) Conley, W; Proc SPIE 1998, V3333, P357 CA
(5) Dektar, J; J Amer Chem Soc 1990, V112, P6004 CA

L31 ANSWER 1 OF 1 CA COPYRIGHT 2003 ACS
AN 135:144701 CA
TI High resolution **photoresist** compositions
IN Barclay, George G.; Heumann, Roberg G.; Rutter, Edward W., Jr.; Chen, Jung-kuang R.; Lawson, Margaret C.; Jordhamo, George M.; Hughes, Tiomothy M.; Moreau, Wayne M.; Mewherter, Ann Marie
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CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
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	JP 2001272796	A2	20011005	JP 2001-30596	20010207
	US 2003003391	A1	20030102	US 2001-778365	20010208
PRAI	US 2000-180905P	P	20000207		

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IT **Photoresists**
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(**Photoresist** compns. org. solvents treatment)
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RL: TEM (Technical or engineered material use); USES (Uses)
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RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
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(1) Agency Of Ind Sci & Technology; JP 52004833 A 1977 CA
(2) Aoai, T; US 5707776 A 1998 CA
(3) Clariant Int Ltd; WO 9827129 A 1998 CA
(4) Clariant Int Ltd; WO 9827462 A 1998 CA
(5) Clariant Int Ltd; WO 0033137 A 2000 CA
(6) Jsr Corp; EP 0930541 A 1999 CA
(7) Kim, S; US 5389494 A 1995 CA

(6) Freeman, R; J Chem Phys 1971, V55, P4586 CA
(7) Freeman, R; J Magn Reson 1972, V7, P327 CA
(8) Hinsberg, W; ACS Symposium Series 537 Polymers for Microelectronics: Resists and Dielectrics 1993, P101
(9) Ito, H; ACS Symposium Series 242 Polymers in Electronics 1984, P11
(10) Ito, H; J Photopolym Sci Technol 1994, V7, P433 CA
(11) Ito, H; J Photopolym Sci Technol 1995, V8, P505 CA
(12) Ito, H; J Photopolym Sci Technol 1997, V10, P397 CA
(13) Ito, H; Proc SPIE 1993, V1925, P65 CA
(14) Ito, H; Proc SPIE 1995, V2438, P53 CA
(15) Ito, H; Proc SPIE 1997, V3049, P575 CA
(16) Ito, H; Solid State Technol 1996, V36(7), P164
(17) McKean, D; ACS Symposium Series 412 Polymers in Microlithography: Materials and Processes 1989, P27 CA
(18) Rao, V; Proc SPIE 1994, V2195, P596 CA
(19) Sakamizu, T; Jpn J Appl Phys 1992, V31, P4288 CA